VEHICLES OF THE LONG RANGE DESERT GROUP 1940–45

GAVIN MORTIMER

ILLUSTRATED BY HENRY MORSHEAD AND IRENE CANO RODRÍGUEZ

NEW VANGUARD 291

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VEHICLES OF THE LONG RANGE DESERT GROUP 1940–45

INTRODUCTION

The Long Range Desert Group (LRDG) was *the* glamour force of World War II. The commandos, Chindits, paratroopers and Special Air Service were greatly admired but it was the LRDG which captured the imagination of those on the Home Front. Why? Because they appealed to the British sense of chivalry and the photographs and articles, and even radio broadcasts, invoked an image of a romantic warfare, an escapism from the horror of the reality of a brutal conflict where bombs dropped from a great height, flattened homes and ended lives in an instant. The LRDG, by contrast, was an apparent throwback to another age, when a warrior's courage and wits were what mattered. In a war of terrifying technology, of flying rockets, jet aircraft and, ultimately, atomic bombs, there was a quasi-romanticism about the LRDG. Maybe it was the 'uniform' – the sandals, shorts and headdress – or the fact they were waging a war, which, in the words of one British press report in January 1942 'provides a series of thrillers which might have adorned the pages of schoolboy stories'. More than anything, however, what really struck a chord with the British, was the LRDG's eccentricity. These 'Daring Desert Roamers', as the *Aberdeen Press and Journal* dubbed the LRDG in February 1941, 'crawled 200 miles through sand waves' in rickety old trucks that even a rag-and-bone man would have thought twice about climbing aboard!

Just as the deeds of Lawrence of Arabia in World War I were immortalized in the inter-war years, so the LRDG became a byword for derring-do in the 1950s and 1960s. Books were written, films were made (*Sea of Sand* in 1958 starring Richard Attenborough) and a television mini-series (*Rat Patrol*) broadcast; all focused on the Desert War, ignoring the admirable contribution of the LRDG in subsequent theatres such as Italy, Greece and the Balkans. They didn't have quite the romantic appeal of the Great Sand Sea of North Africa where the 'pirates' of the LRDG sallied forth against the Afrika Korps and their wily leader Rommel, he of 'Desert Fox' fame.

An unfortunate offshoot of this glamorization of the LRDG was that it tended to dilute in sober military terms just how effective they were, and how quickly they became masters of their craft – desert reconnaissance. It also perhaps goes some way to explain why, in the last half a century, the

LRDG – aficionados of military history excepted – have faded into obscurity while the SAS, SBS, commandos and paras are regularly remembered, such as the commemorations in September 2019 to mark the 75th anniversary of Operation *Market Garden*, the airborne's attempt to seize a series of bridges in Holland in the hope of shortening the war. There have not, in recent decades, been any similar events to recognize some of the LRDG's many successful exploits in World War II.

An undated photo of a Y1 Patrol somewhere in North Africa. The soldiers in the jeep are (left to right) Ken Tinckler, Derek Hutchins and Jim Patch. Post-war, Patch served for many years as the secretary of the LRDG Association. Unlike the SAS jeeps, the LRDG Willys were lightly armed with this one sporting a single Vickers. (Ian Chard)

And yet, few units were lavished with such praise as the LRDG received in the five years of its existence. In October 1940, six weeks after Captain Pat Clayton led the LRDG on its inaugural patrol into Italian-held Libya, General Archibald Wavell, General Officer Commanding-in-Chief of Middle East Command, wrote to the unit's C.O., Major Ralph Bagnold to convey his congratulations on their auspicious start: 'I am aware of the extreme physical difficulties which had to be overcome, particularly the intense heat,' wrote Wavell. 'That your operation, involving as it did 150,000 track miles, has been brought to so successful a conclusion indicates a standard of efficiency in preparation and execution, of which you, your officers and men may justly be proud.'

By October 1941, Wavell's respect for the LRDG had deepened. 'Their journeys across vast regions of unexplored desert have entailed the crossings of physical obstacles and the endurance of extreme summer temps, both of which would a year ago, have been deemed impossible,' he wrote. 'Their exploits have been achieved only by careful organization and a very high standard of enterprise, discipline, mechanical maintenance and desert navigation.'

This photograph, taken at one of the desert oases, captures the piratical nature of the LRDG that their founder, Ralph Bagnold, had pitched to General Wavell in June 1940. A bearded and bare-chested private Blondie Goddard of 'S' Patrol poses by his Jeep Command Car (date unknown). The twin Vickers Gas-Operated Mk. 1 was the preferred jeep weapon of L Detachment, SAS, in the desert. Its large 300-round pan magazine gave it a rapid rate of fire (950–1,200 round/min) and it rarely suffered jams from the sand. Unlike the SAS, the LRDG's jeep usually carried just one weapon. (Private Collection)

In November 1941, a month after Wavell's acclamation, the LRDG came to the rescue of a fledgling unit called L Detachment, Special Air Service, after their inaugural operation had ended in disaster. Thus began a partnership that endured for decades, long after the war had concluded. It was the SAS Regimental Association which, in 2013, organized a memorial to be incorporated into the monument in the west cloister of Westminster Abbey commemorating the men of the Submarine Service of the Royal Navy, the commandos, the Airborne Forces and SAS. The words 'Masters of

Desert Craft' were engraved above the LRDG scorpion badge. Never was an epitaph so richly deserved.

In 2014 the SAS Regimental Association unveiled in Scotland a memorial honouring the LRDG. Underneath the Scorpion Badge of the LRDG are the words 'They Showed the Way', an appropriate inscription for a unit that gave succour to the SAS in November and December 1941. Following the disaster of their inaugural raid, when 34 of the 55 men were killed or captured, the SAS turned to the LRDG. Using the LRDG's expertise, and their vehicles, they began carrying out devastating raids on Axis airfields until the SAS became self-sufficient in July 1942 with the arrival of the Willys jeep. (Author's Collection)

Mike Sadler, Jim Patch and Lofty Carr, three veterans of the Long Range Desert Group reunited in Scotland in 2014 for the unveiling of a memorial to the unit, in the shadow of David Stirling's statue. The founder of the SAS was unstinting in his praise of the LRDG, describing the 'debt of gratitude' he owed them. This debt was repaid by the SAS Regimental Association

in the unveiling of this worthy tribute to Britain's first desert special force. Carr and Sadler were both navigators in the LRDG, although the latter subsequently joined the SAS in 1942. (Author's Collection)

Shortly after, another memorial was unveiled in the shadow of the statue of David Stirling, the founder of the SAS, close to where he grew up. The wording on the memorial, which was an evocation of the desert, was 'They Showed the Way', a poignant acknowledgement of the debt owed by the SAS to the LRDG in the early months of its existence. This book is devoted to the men of the LRDG, and more specifically, to the machines in which they 'showed the way'.

BAGNOLD BLAZES A TRAIL

The man who founded the LRDG was Ralph Bagnold. Born in 1896 he was mechanically minded from an early age, an inquisitive introvert who recoiled at the cult of competitive sport that dominated his public school. 'I resented compulsory football and cricket,' he recalled in his memoirs of his time at Malvern. 'I was, however, able to avoid both by joining the engineering school where, as an afternoon alternative, I learned to use metal-working machine tools, lathes, milling and drilling machines.'

Bagnold joined the Royal Signals on the outbreak of World War I, and was posted to the Western Front, where he spent three years in the trenches. It was a theatre as far removed as one could imagine from the Western Desert, the vast, harsh land west of Cairo, where thousands of Senussi tribesmen heeded Turkey's call to wage jihad against the British. To combat the threat, Sir Archibald Murray, the general in charge, organized his troops into the Western Frontier Force, amalgamating infantrymen with units of cavalry and artillery, augmenting them with a squadron of light bombers from the Royal Flying Corps and, from early 1916, an innovation called the Light Car Patrol (LCP) was introduced to the battlefield.

Composed of Daimler, Mercedes and, most commonly, 20-horsepower, 4-cylinder Model T Fords, the vehicles were fitted with machine guns and were directed to Senussi camps by aircraft from an RAF reconnaissance squadron. An Australian officer in the LCP, Captain E.H. James, described what it was like to drive a 50-horsepower Daimler in his memoirs, *The Motor Patrol*: 'Every ounce that was not necessary was taken off the vehicles. For instance, the cars had no bodies at all. The seats consisted of ration & Ammunition boxes; the cushions were the men's blankets. Two of the cars were stripped of the Lewis Guns mountings. This meant that only one car was really armed, but each car was provided with a rifle, and the crews all had their revolvers... once a car got a start it could usually keep going. The crew would run along and push until a speed of 6 or 8 miles per hour was reached and then jump up on to the step.'

Ralph Bagnold remained in the army after the war, and in 1925 he was posted to Egypt. When he first glimpsed the desert, it was love at first sight, conjuring happy childhood memories of roaming the wilds of Dartmoor. 'Both had the strange aura induced by the physical presence of the remote

past, and also by the great bare trackless expanses where the careless might well get lost,' he wrote.

Unlike the moors of Dartmoor, Bagnold roamed the desert in a Model T Ford, embarking on his first expedition in 1926. It was the first foray into the Libyan Desert that in time would make Bagnold the most celebrated desert explorer of his generation.

In October 1927, Bagnold and five others set off for Siwa Oasis, 400 miles to the west, travelling in three Model T Fords with 42 gallons of petrol and enough water for ten days. It was a daunting but exhilarating adventure, as he described in an article for a newspaper. 'It was a painful crossing,' he wrote. 'The cars creaked and groaned as each wheel climbed independently and fell over the cracked waves of upthrust salt. For nearly an hour we crawled across at walking pace, past, here and there, the bones of camels who had fallen broken-legged by the way.'

This photo is believed to show the gravel plain towards the eastern edge of the Kalansho Sand Sea. This was terrain on which the going was easy but beyond it was the Great Sand Sea (the natural barrier roughly the size of Ireland), described by Bill Kennedy Shaw, the LRDG intelligence officer, as providing some of 'the three most unpleasant days of my life' in 1940. (Author's Collection)

The pain only whetted his appetite and, as automobiles became more sophisticated, so Bagnold became more adventurous, confident in their ability to withstand the rigours of the desert, and even the Great Sand Sea, the natural barrier roughly the size of Ireland that stretches from Siwa Oasis,

in the north-west of Egypt, almost as far south as Sudan. He discovered that with the right coaxing a motor car could climb the vertiginous dunes of the Great Sand Sea.

In 1935, after ten years of desert exploration Bagnold, then in his fortieth year, opted for a quieter life, trading his compass for a pen, and embarking on a career as a science writer. He met with swift success, publishing several papers and even a book, entitled *The Physics of Blown Sand and Desert Dunes,* which drew on his knowledge gained in North Africa.

No one knew the subject as well as Bagnold; not just the physics but the practicalities of surmounting blown sand and desert dunes in a vehicle.

Pirates of the high sea

Bagnold also possessed an unparalleled knowledge of Italian troop dispositions in North Africa. His expeditions through Libya – which since 1912 had been a colony of Italy – in the 1920s and 1930s had taken him past many Italian outposts, and this intelligence was passed onto Middle East Command in 1939 when Bagnold arrived in Egypt.

Some of the rock formations in the Libyan Desert, such as the ones below, were natural but others had been made by Bagnold and his fellow explorers during the 1920s and 1930s. One such, 'Big Cairn', on the edge of the Great Sand Sea, was a useful marker for the LRDG during their patrols into enemy territory. (Author's Collection)

Unfortunately the British failed to exploit Bagnold's intimacy with the region and it was only at the third time of asking in June 1940, just after

Germany had invaded the Low Countries and Italy had declared war on Britain, that his suggestion to raise a small reconnaissance force to patrol the 700-mile frontier with Libya was accepted. As he recalled later of the proposal he submitted to HQ, he envisaged three patrols, at least two of which would always be 'fighting' while the third would ferry supplies across the desert and cache them in dumps. 'Every vehicle of which, with a crew of three and a machine gun, was to carry its own supplies of food and water for 3 weeks, and its own petrol for 2500 miles of travel across average soft desert surface – equivalent in petrol consumption to some 2400 miles of road,' he wrote. 'By the use of 30-cwt (hundredweight) trucks there would be a small margin of load-carrying capacity in each. This margin, if multiplied by a large enough number of trucks would enable the patrol to carry a wireless set, navigating and other equipment, medical stores, spare parts and further tools, and would also allow extra petrol to be carried for another truck mounting a 2-pdr gun with its ammunition, and a light pilot car for the commander.'

Bagnold was authorized to put his plan into practice on 23 June (initially the unit was designated the Long Range Patrol but for clarity's sake I refer throughout to LRDG) and told to have it operational by the start of August.

His first act was to wire his old explorer friends. Some accepted Bagnold's invitation to join the unit, others offered advice and some provided more practical assistance. 'I was with the mission to the Egyptian army at the time and Ralph Bagnold rang me up,' recalled Rupert Harding-Newman, a regular officer in the Royal Tank Corps. 'I went to see him and it was all very secret and hush-hush and everything else, and he said, "Well would you come, if we start the patrols", and I naturally said "of course, I would".'

But Harding-Newman was denied permission to join what many senior officers adjudged to be a highly irregular outfit. 'So I merely had to help in the formation by providing any equipment I had such as the sun compass, which I'd bought for the Egyptians,' he said. 'I also provided [Bagnold] with most of the American vehicles that I'd ordered for the Egyptian army.'

Harding-Newman's modesty did him a disservice. In the space of a day, he brought to Bagnold four types of American truck to test drive. 'We took them out for test runs over rocks and through soft sand,' remembered Bagnold. 'I decided there and then upon an ordinary commercial pattern of 30-cwt Chevrolet, fast, simple and easy to handle. There followed days of anxiety as

to whether the 33 of them we wanted could be found in Egypt. In the end we had to beg 19 off the Egyptian Government to make up the number.'

The men were recruited from the New Zealand Division because Bagnold considered that Kiwis were more resourceful and respectful than the average British Tommy, and 'would treat their precious vehicles and apparatus as their own, realizing that their lives might depend on them.'

Bagnold had his men and his machines, and he had selected well, for their symbiosis would soon come to be the scourge of the Axis forces in North Africa.

THE LRDG AND THE NORTH AFRICAN CAMPAIGN

Chevrolet WB (30-cwt)

The Chevrolets acquired by Bagnold were WB, each one of which weighed 1½ tons. Among the specifications were left-hand steering, a 216 CI 6-cylinder inline engine, four forward and one reverse gear, and a maximum range of 240 miles on a single 20-gallon tank. They were lightly armed, with just a Lewis gun or a Vickers Maxim, the mounting of which was one of the many tasks undertaken by the fitters to get the Chevrolets ready for the start of August. 'Rupert Harding-Newman instructed the Army Ordnance workshops how best to modify the trucks so they would withstand the rigours of off-road desert travel,' recalled Teddy Mitford. 'Including the attachment of water condensers [see 'Tricks of the Trade' **here**] to radiators, the raising of the sides of the normal box body in order to carry the required loads, mountings for machine guns and brackets for compasses.'

The greatest challenge for the fitters was how to ensure that the vehicles wouldn't be so encumbered with equipment they would sink into the sand a few miles from Cairo. The first task was to remove all the superfluous weight, which included doors, cabs and windscreens, and then brackets and mountings had to be installed to securely hold the wireless sets, petrol cases, spare wheels, sun compasses, water condensers and machine guns. Nonetheless, David Lloyd Owen, one of 'Y' Patrol's officers, wrote: 'Whatever one did to these splendid 30-cwt trucks, they were still more than likely to be loaded up with up to two extra tons of weight. This could only be done if the springs could be given extra leaves to carry the additional load.'

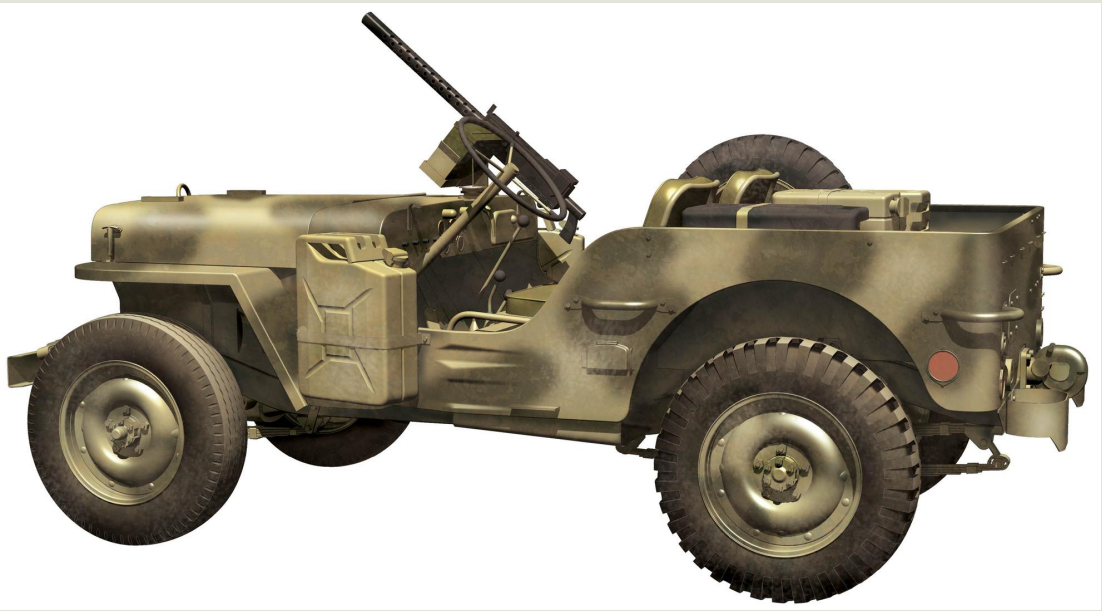
There was also the question of camouflage. 'Ralph produced a camouflage pattern of very broad dark and light stripes, different for each truck,' wrote Mitford. 'Which would help in areas of rock and scrub.' On top of this camouflage was painted the 7th Armoured Division red rat, 'to disguise our real purpose'.

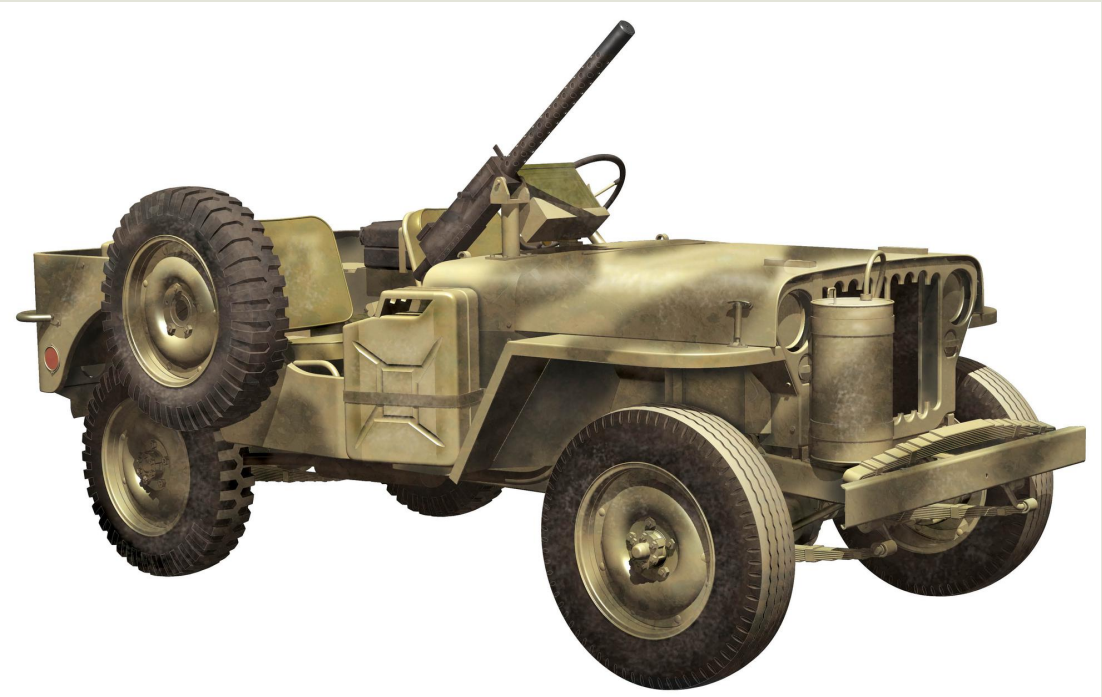
Meanwhile, the 38-year-old Bill Kennedy Shaw, who had arrived in Cairo fresh from censoring newspapers in Palestine for the Colonial Office, adapted some of their pre-war methods of dead-reckoning, astronomical

position-finding and map-making into a series of rules that could be quickly imparted to the New Zealanders.

First, the Kiwis learned the rudiments of desert navigation in the classroom and then drove out into the desert to put their new knowledge to the test. Additionally, they were schooled in negotiating the different types of terrain one finds in the North African desert, and also taught how to surmount a sand dune. The gravel desert was called in Arabic *serir* and the stony surface was *hammada*. Both, in general, were good to travel on because the wind had removed the sand, a phenomenon known as ‘deflation’. A particular menace was powdered clay, which threw up billowing clouds of white dust that were visible for miles around and infested every nook and cranny of a vehicle and a human.

A CHEVROLET WB





Rupert Harding-Newman, a regular officer in the Royal Tank Corps, was the man responsible for acquiring the Chevrolet WB, the sturdy truck that became

synonymous with the LRDG. Harding-Newman presented Ralph Bagnold with four types of American truck to test drive in the summer of 1940. ‘We took them out for test runs over rocks and through soft sand,’ remembered Bagnold. ‘I decided there and then upon an ordinary commercial pattern of 30-cwt Chevrolet, fast, simple and easy to handle.’ The Chevrolets weighed 1½ tons, had a 216 CI 6-cylinder inline engine, four forward and one reverse gear, and a maximum range of 240 miles on a single 20-gallon tank. Although Bagnold had promised to wage ‘piracy’ against the Italians, the Chevrolets were lightly armed with just a Lewis gun or a Vickers Maxim.

On one occasion Bagnold noticed that the wheels on a Chevrolet weren't at the correct pressure. They had just driven over an area of soft sand, where it was necessary to deflate the tyres to a degree of softness that made it easier to negotiate the terrain; then, once the ground got firmer, the tyres were inflated again. It was tedious work, but necessary, and Bagnold was quick to spot this indolent driver who hadn't been bothered to pump the air back into his tyres. 'He demanded that this be done against the pleas of the NZ driver that he had already done so,' recalled Mitford of Bagnold. 'Ralph walked on and the driver was heard to say..."the trouble with that joker is that he is always right"'

The shadows lengthen at the end of a day's patrol and the men get some rest in the lee of their Chevrolet WB. This photograph shows the weapon covered on a swan neck mount at the rear of the vehicle and the sand channel strapped to the side. Interesting to note that the two patrolmen are wearing boots, which were largely dispensed with later in the desert war in favour of 'chapplies', the sandals adopted by the British army on the North West frontier, which proved more practical in the desert for everyday living than boots, which quickly filled with sand. (Brendan O'Carroll).

These trial runs were also invaluable for Bagnold and his officers not just to identify any flaws in a man's character but also in the vehicles and their fittings. One such defect concerned the Vickers machine gun when it was fired into the air. The gun frequently jammed because the ammunition slipped out of the belt. 'Ralph produced a metal plate welded to the belt box carrier which kept the belt in line,' remembered Mitford. 'A fitting was also put on each vehicle on which the Lewis gun was fixed.'

In order to identify his three patrols, Bagnold assigned to each a letter of no particular significance: Mitford commanded 'W' Patrol, Captains Pat Clayton and Bruce Ballantyne were the officers leading 'T' Patrol and Captain Don Steele, a farmer from Takapu, commanded 'R' Patrol. The New Zealanders christened their Chevrolets and the men in 'W' Patrol chose names that began with 'Wai', meaning water: *Waikaha*, *Waima*, *Waitoma*, *Waiariki*. In 'R' patrol the names were: *Rotoma*, *Rotowaro*, *Rotokawa*, *Rotowhero* and *Rotoroa*, and the men of T Patrol also chose to create a link with their homeland by dubbing their vehicles, *Te Anau*, *Te Rangi*, *Taipo*, *Tutira*, *Te Aroha*, *Te Paki* and *Tirau*.

By the first week of August, Bagnold judged it time to send out the first patrol. It was a small affair, just two trucks under the command of Captain Pat Clayton. They departed Cairo on 7 August and returned 12 days later, having covered 1,600 miles and seen neither hide nor hair of the Italians. Nonetheless, recorded Clayton, 'we had proved that [we] could go and come back to a strict timetable.' The patrol had also discovered a hitherto unmapped strip of sand sea, 100km wide, immediately east of the Jalo–Kufra road.

Patrolling proper commenced in September. On the fifth of the month Mitford and Kennedy Shaw departed Cairo with 'W' Patrol, accompanied by a small HQ party under Bagnold. They drove 350 miles south-west to Ain Dalla, on the eastern edge of the Great Sand Sea, and replenished their petrol and water supplies from dumps laid earlier in the summer. Meanwhile Clayton's 'T' Patrol and Steele's 'R' Patrol were busy ferrying 7,000 gallons of petrol across the Sand Sea from Siwa Oasis. Clayton then headed south towards Chad – among his patrolmen was Frank Jopling, who kept a diary of their journey. On 19 September he wrote: 'The travelling was very rough and soft going and when the sun got a bit of heat in it we had to have frequent halts to cool down the engines, especially the V8 [Light 15-cwt Ford V8 Pilot].'

Nonetheless, the Chevrolets proved their durability during a 2,000km round trip and when 'T' Patrol arrived back in Cairo on October 1, Jopling wrote: 'We have of course broken a lot of records, and done what the "heads" reckoned would be impossible. No 30-cwt truck has ever crossed the sand sea, yet our patrol and "R" had 20 30-cwt trucks between us as we went over.'

Jopling had grown attached to his truck, the back tyres of which he noticed had returned from the desert far more worn than the front ones. The day after his return he unloaded his truck, the next day he cleaned it and in the afternoon his and the other ten trucks of 'T' Patrol were driven to the Universal Motors factory in Cairo, 'where they clean the springs and engine with a compressed air gun which makes a very good job, and then they grease it'.

One modification that Jopling made was to remove the spare tyre from the back of the Chevrolet and attach it to the side by the driver's seat. 'It was always in the way at the back and if we did want it, it would be hard to get at,' he explained in his diary.

As a result of the success of their inaugural patrols, in October Bagnold submitted a request to expand the unit, and permission was granted the following month (and at this point they officially became the LRDG). As the three New Zealand patrols embarked on another reconnaissance mission, Bagnold went on a recruitment drive, choosing volunteers from the Brigade of Guards and Yeomanry regiments, because he believed these soldiers had the characteristics best suited to his line of work.

Members of 'G' (Guards) Patrol shortly after its formation in late 1940. This photo was perhaps taken en route to the attack on the Italian fort at Murzuk in south-western Libya when Pat Clayton led a column of 24 vehicles across the desert. The guardsmen are well wrapped up in their sheepskin jackets against the bitter desert cold, and most have chosen the cap comforter as their preferred headgear. Behind them is their Chevrolet WB, the LRDG's original truck of choice. Michael Crichton-Stuart, 'G' Patrol's commanding officer, said it took a while for his drivers to 'familiarise themselves with the strange vehicles.' (Author's Collection)

On 5 December, 36 guardsmen from the Scots and Coldstream Guards joined the LRDG under the command of Captain Michael Crichton-Stuart; meanwhile 'W' Patrol had been broken up and the men distributed between 'R' and 'T' Patrols. As for the Chevrolets, they were begrudgingly given to the Guards Patrol. 'The New Zealand drivers were unhappy and perfunctory about surrendering their faithful charges, which had done them so well over thousands of miles,' wrote Crichton-Stuart, who, as one might have expected from a Guards' officer, was taken aback by the vehicles' appearance. 'Stripped of essentials such as windshields and doors... the drivers familiarised themselves with the strange vehicles.'

Yet despite outward appearances, there was military precision to the way the new recruits to the LRDG were expected to load their vehicles. Denis 'Shorty' Barrett, the quartermaster, furnished the Guards with 20 tons of stores and equipment to load onto their ten trucks and the Ford 01 Pilot Car. Crichton-Stuart counted seven Lewis guns, four Vickers, four Boys anti-tank rifles, the Bofors gun and its ammunition. Then there were all the spare parts, and plenty of springs, the rations and water for three weeks, medical supplies, the fitter's tool kit, navigator's accoutrements and all the signaller's tools of the trade. 'But the bulk of every load was petrol,' said Crichton-Stuart. 'Tons of it, in four-gallon "expendable" tins, two tins to a wooden packing-case. Keep every scrap of wood, we were warned.'

Wariness soon turned to wonderment, as 'G' Patrol set off in December for its inaugural patrol (an attack on the Italian fort at Murzuk) and sailed effortlessly over the Great Sand Sea. 'Gathering speed on the downward slope into the trough, the trucks soared up the next dune on their impetus, their wide desert tyres, partly deflated, making the shallowest impression in the minutely rippled sand,' recollected Crichton-Stuart.

Ford 01 V8 (15-cwt) command/pilot car

Crichton-Stuart's Guards Patrol were part of a combined force of 76 men, which included 'T' Patrol in a column of 24 vehicles commanded by Pat Clayton, now promoted to major, and which included a small Free French attachment of ten men led by Lt. Colonel Jean d'Ornano.

Clayton was driving a Ford 01 V8 pilot car, a recent acquisition by the LRDG after it was decided that the original command car, a small Chevy truck, was not fit for purpose. The Ford 01 varied in weight between half a

ton and three-quarters of a ton, depending on the model. The wheelbase was 114in, the steering left-hand and the fuel capacity was 16 gallons.

There was a V grille in front but the LRDG cut holes on the engine bonnet to improve air circulation to the motor. As time passed, the men made other modifications to the Ford 01s, which included stripping away the doors and fixing swan neck machine gun mounts. In some instances, a superstructure of wood was constructed around the truck bed to hold storage bins and they were armed with either a Vickers or a Lewis gun in the commander's seat.

B LIGHT 15-CWT FORD 01 PILOT MOUNTING DUNE

The Ford 01, which replaced the small Chevy truck as the pilot vehicle, varied in weight between half a ton and three-quarters of a ton, depending on the model. The wheelbase was 114in, the steering left-hand and the fuel capacity was 16 gallons. There was a V grille in front but the LRDG cut holes on the engine bonnet to improve air circulation to the motor. Other modifications to the Ford 01s included removing the doors and attaching swan neck machine gun mounts. In some instances, a superstructure of wood was constructed around the truck bed to hold storage bins and they were armed with either a Vickers or a Lewis gun in the commander's seat.

On occasions, the navigator sat in the pilot car if the terrain was particularly challenging, as Lofty Carr, the First Navigator of 'Y' Patrol, remembered: 'As a navigator I would lie on the back truck, not the front one because that made my dead reckoning easier,' he said. 'So in a five vehicle patrol I would work out the bearing, give it to somebody else and they would set off. If I'm in the front vehicle navigating, I'm doing this all the time, making hand signals, that's why I preferred the back. But there were times when I had to be up front if the going was really tough.'

There are a couple of unusual features in this photograph of 'Y' Patrol trying to mend their broken-down Ford 01 pilot car. First, the vehicle has not been stripped down and still has its roof and windscreen, suggesting it has not been used for patrols. The other indication that this photograph was taken during a training exercise is the *topi* (also called a pith helmet), worn by the soldier on the right. These were worn initially by some LRDG men but they were quickly dispensed with because they were liable to be crushed beneath a case of rations or a gun magazine and reduced to pulp. (Ian Chard)

In keeping with the rest of his Kiwi patrol, Clayton had given his Ford 01 a name, *Te Rangi*, (the leader), and in the early afternoon of 11 January he led his force in an attack against the remote Italian fort at Murzuk.

While Clayton's 'T' Patrol made for the airfield situated close to the fort, Crichton-Stuart and 'G' Patrol attacked the actual garrison, inducing the Italians to surrender after a two-hour battle. Resistance on the airfield was also subdued although not before Colonel d'Ornano was shot dead in the front passenger seat of Clayton's pilot car. Another bullet had hit the theodolite on the running board and a French captain had stopped another in his calf, which he cauterized with a lighted cigarette.

The next day Clayton's force headed towards the Tibesti Mountains in Chad, overrunning a small outpost at the town of Traghan, but on the last day of the month luck ran out for 'T' Patrol when they were assailed by an Italian motorized patrol on Jebel Sherif, 70 miles south of Kufra. Three of the LRDG's 11 vehicles were destroyed in the initial assault as Clayton ordered the rest of the patrol to withdraw from the valley. 'I was shepherding them away to the south and being the last car got full attention from the planes,' wrote Clayton. The Italian aircraft swept in low and riddled the Ford with bullets. One pierced the radiator, another the pump connection and two more blew out the front tyres. 'We poured in water and started again and did 3 or 4 kilos until the engine dried up,' said Clayton. The Italians came in again, and one bullet tore through Clayton's forearm and another shattered the engine. This time there was no escaping the pursuing Italian vehicles.'

Harry Chard of 'Y' Patrol attempts to dig out a Ford 01. Notice the steel sand channel in the foreground, which was devised by Ralph Bagnold in 1929. Originally, he had used rope ladders with bamboo rungs for this purpose, but he spotted some steel panels in a Cairo junk shop and at once realized their potential. The Ford 01 was a left-hand drive vehicle used as a pilot car by LRDG officers and the chassis was tough and durable. However, their V8 engine suffered from the sand and they were subsequently replaced by 8-cwt Fords and later by the Chevrolet 1311s. (Ian Chard)

Ford F8 pick-up and Chevrolet 1311

Bruce Ballantyne, who succeeded Clayton as commander of 'T' Patrol, preferred a Ford F8 pick-up as his pilot car, an 8-cwt short-wheelbase variation on the Ford truck. Although Clayton found the Ford 01 to his liking, other officers in the LRDG considered that while it stood the rigours of the terrain, its V8 engine was prone to unreliability on account of the sand.

By the end of 1941 the Ford 01 V8s had been run into the ground and they were replaced either by the Ford F8 pick-up or, more commonly, the Chevrolet 1311, the baby brother of the Chevrolet 1533. The first Chevrolet 1311 model to see service in the LRDG was the 1939–40 model 15-cwt with a 113½in wheelbase, but the 1941 model had a 115in wheelbase and a waterfall (i.e.vertical bars) grille. They proved popular and remained a staple of the LRDG until phased out by the arrival of the Willys jeep, although even then some of the 1311s were appropriated by HQ squadron and used for a variety of tasks.

Patrol commanders in the LRDG varied in the choice of vehicle for their pilot car, and the one in this photograph is believed to be a Ford F8 dubbed *Te Rangi III*, otherwise known as *Stinker*. It was driven by the New Zealand officer Bruce Ballantyne. There was, for a time, confusion within LRDG associations as to whether *Te Rangi III* was indeed a Ford F40 or a Ford F8. An LRDG veteran said he believed it was an F40 but in fact there was no F40 class built by Ford. (Ian Chard)

Ford pilot car captured by the Italians from Capt. Clayton. The capture of Pat Clayton on 31 January 1941 was a terrible blow for Ralph Bagnold and the LRDG in general. Earlier in the month he had attacked the Italian fort of Murzuk but, on the last day of January, his patrol was ambushed by an Italian motorized patrol on Jebel Sherif. As well as being hit himself in the attack, Clayton's car had two tyres blown out and took a bullet in the radiator. Aircraft joined the fray, inflicting further damage, and Clayton was forced to surrender. 'I had a good run and cannot complain,' he wrote home from his POW camp. (John Valenti – The LRDG Preservation Society)

'Y' Patrol's 15-cwt pilot car in 1941. Nicknamed *D'Artagnan*, this 15-cwt pilot car was a Ford F8, a small short-wheelbase version of the Ford truck. These and the Chevrolet 1311s replaced the Ford 01 in early 1941 with the latter increasingly unreliable because of its engine. Ralph Bagnold liked to drive a Ford F8, as did Gus Holliman, 'S' Patrol's commander, although both experienced broken right half-shafts while out in the desert. This was a weakness in the

vehicle and in future the Rhodesians strapped two spares to the chassis when they went on patrol. (Ian Chard)

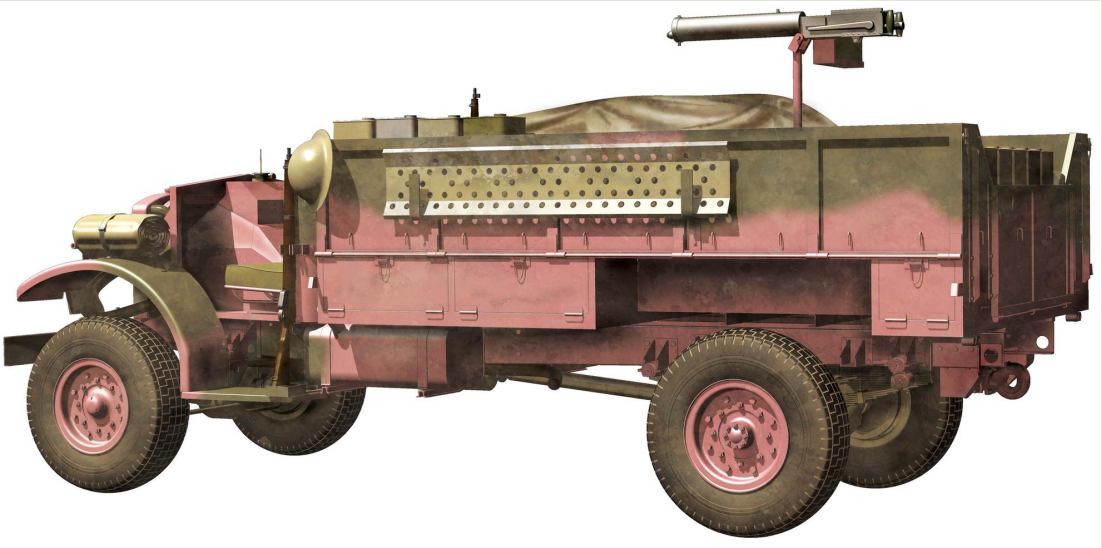
Two days before Clayton was captured, a band of Rhodesian soldiers arrived at the LRDG's headquarters at the Citadel in Cairo having been recruited by Bagnold, one of whom was Cecil 'Jacko' Jackson. He recalled that Bagnold, driving a Ford F8 pick-up, escorted the Rhodesians into the desert to teach them some driving fundamentals. Bagnold also wanted to test out the F8 and Jackson said that it 'worked quite well until it broke its right half-shaft'. That led to six hours of hard graft from the Rhodesians in temperatures of 100° Fahrenheit as they heaved the F8 up a dune and onto a truck. (Despite this incident, Gus Holliman, 'S' Patrol's commander, used an F8 as his pilot car on early patrols. Forewarned, however, about the fragile half-shaft, the Rhodesians strapped two spares to the chassis, and they were needed when Holliman's half-shaft snapped.)

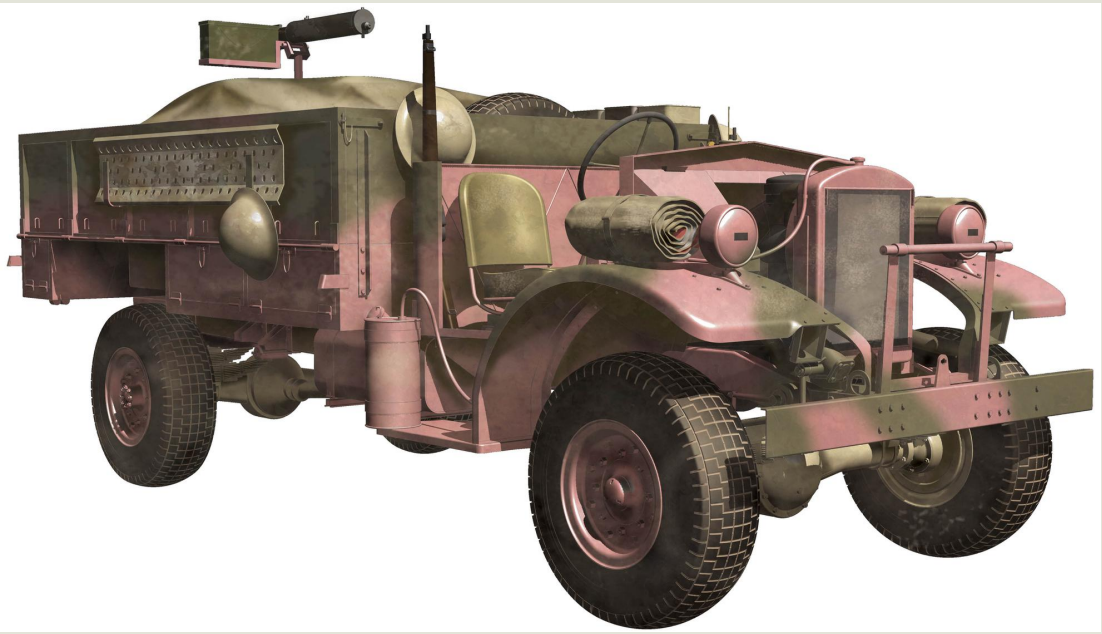
Unfortunately for the Rhodesians, known as 'S' Patrol, all that was available on which to learn were some Italian Spas (the AS.37 light trucks captured from the Auto-Saharan units). 'This truck was a nightmare, being about the size of a two tonner with the cab over the front wheels and the engine in the chassis under the body,' recalled Jackson. 'It was four-wheel drive and four-wheel steering with diff. and steering locks to help unsticking. The whole contraption looked top-heavy.'

En route to their desert training ground from the Citadel, there were a couple of minor accidents as drivers struggled to master the Spas, to their horror discovering that when they turned the steering wheel, both the front and back wheels turned the same way and the truck moved sideways.

Bagnold didn't stay long with the Rhodesians, leaving them with a promise that when they returned to Cairo they wouldn't have to wait long for new trucks. He was true to his word. Within a few weeks, 'S' Patrol was the proud owner of ten new Ford F30 trucks.

C FORD F30





The Ford F30 entered LRDG service in early 1941 after a long search for a vehicle suitable to replace the Chevrolet WB. Single four-wheeled-drive with large tyres, the Ford F30 had a high ground clearance and bigger payload than the Chevys but they never proved popular with the LRDG. The LRDG's founder, Ralph Bagnold, introduced the first camouflage pattern of broad dark

and light stripes that was effective in areas of rock and scrub. Subsequently, more subtle colours were used, such as plain yellow or salmon pink, or even a colour scheme of blue, green, yellow and pink stripes, which helped blend the vehicles into the sand.

Ford F30 CMP (30-cwt)

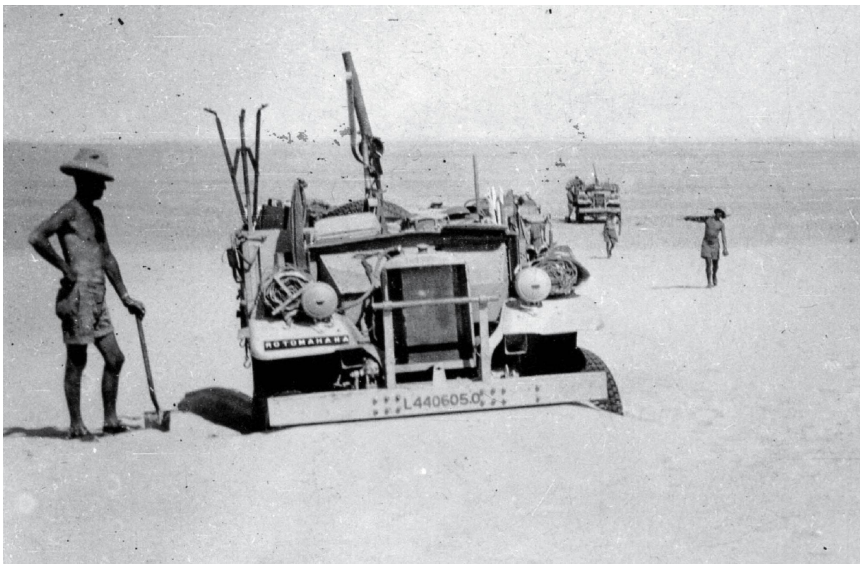
Bagnold had been in search of more vehicles since the end of October 1940. On the 30th of the month, in a memorandum to Middle East HQ, he had stressed the necessity of acquiring suitable trucks in the expectation that he would receive authorization to expand the LRDG. At the moment, he wrote, the unit is using the 'ideal… 1940 model Chevrolet with the 133in chassis. It will in an emergency carry 2 tons or more, and travels well without damage, even over exceedingly bad country with a load of 1½ tons'. So impressed was Bagnold with the Chevrolets during the raid on Murzuk, that he gave an interview to the press which, in the words of Bill Kennedy Shaw, led to a series of articles in which the vehicles 'earned the tribute "to British workmanship" which the publicity people at Middle East awarded them in the Press "puff" issued after the raid'.

However, there were no more Chevrolets available in Cairo and therefore Bagnold was obliged to look for another manufacturer. 'Unfortunately,' he wrote, 'only one vehicle has so far been available in the Middle East for desert trials – a six-wheeled Foden [a British truck and bus manufacturing company]. It is no use. Three more types are on their way, including two American ones. It is possible that one of these may do.'

Members of 'Y' Patrol pose for the camera in the summer of 1941 in front of their Ford F30 truck. This photograph captures the unorthodoxy of the LRDG when it came to uniform. Some men wear pith helmets, others service caps, bush hats or cap comforters, and there is similar variation in shorts and battledress trousers. Most men are wearing sandals (known as chapplies) which were more practical than boots. Lofty Carr, 'Y' Patrol's First Navigator, is second from right, and as of November 2019 the only surviving veteran. Alan Denniff is far left and Derek Hutchins next to him. (Ian Chard)

Nonetheless, Bagnold, urged HQ to trial as many trucks as possible, British and American, not just for the benefit of the LRDG but for the British army as a whole. He advised that the two essential requirements of any such vehicle were:

1. That the road pressure per sq in of tyre area in contact with the ground shall not exceed a certain maximum value.
2. That as much weight as possible shall be carried on the power-driven vehicle.



Burned brown by the sun, Harry Chard of 'Y' Patrol takes a break from digging out his Ford F30 truck, *Rotomahana*. Heavier and less nimble than the Chevrolet WBs, the Fords were four-wheel-drive vehicles that came into service with the LRDG from early 1941 onwards. *Rotomahana* belonged to 'R' Patrol and was named after the lake on New Zealand's North Island. It was common practice to give names to trucks in the LRDG and while the Rhodesians and Kiwis opted for cultural references, the British 'Y' and 'G' patrols were more irreverent in their choice with one truck called *Who Cares*. (Ian Chard)

He continued: 'six-wheelers are inherently bad over loose sand, owing to an apparently unavoidable judder between the two rear axles. Even the Marmon-Herrington six-wheeler with power-driven front wheels suffers from this trouble and is but little better for its front-wheel drive. The double-bogy six-wheeled truck might be suitable. The ideal appears to be a single four-wheeled-drive truck with very large tyres.'

Despite Bagnold's memo requesting extensive trials in the selection of future vehicles, he had to take what he was given by Middle East HQ, which was the Ford F30, Canadian Military Pattern (CMP) truck specifically built

for the Canadian army. ‘As there was no alternative the [LRD] Group was obliged at the end of February to accept 70 of these vehicles without trial,’ was the entry in the unit war diary.

They at least met Bagnold’s requirements in that they were single four-wheeled-drive with large tyres, and they also had a high ground clearance and, according to Cecil Jackson, a bigger payload than the Chevrolets. He described the Fords thus: ‘They were cab-over-engine four-wheel drive trucks powered by Ford V8 engines. We stripped off the cabs, windscreens, doors and bonnet covers and then added the extras that the NZ trucks had.’ The condenser was mounted on the running board in most cases. All this took time and the LRDG war diary recorded that ‘the necessary modifications and fittings were completed by 20 March’, during which time they continued to use a dozen Italian Spas.

Some of the New Zealanders took the Fords for a test run and declared them heavier and less nimble than the Chevys. There were other disadvantages to the Ford. Whereas the Chevrolet could cover 240 miles on a single 20-gallon tank, the Ford F30’s maximum range on its two 12¼-gallon tanks was 150 miles. Consequently, more fuel had to be taken on patrols and this meant other supplies and equipment had to be sacrificed.

The engine was also vulnerable to sand, and there was an additional problem. ‘Apart from the heat of the sun, on the Fords you also had a blast of hot air hitting you in the face all the time from the engine,’ recalled Lofty Carr.

Two other members of ‘Y’ Patrol shared Carr’s sentiments. ‘You had to sit right next to the engine, and it became very hot,’ recalled Jim Patch. ‘They were four wheeled drive and as good as any vehicle we could have hoped for at the time [but] they were never particularly popular.’

David Lloyd Owen said the Fords were ‘by no means ideal for the job, but there was simply nothing else available in the Western Desert’.

Jackson said that Bagnold was as eager to try out the Ford F30s as the Rhodesians and so they set off into the desert, passing the Pyramids and heading 350 miles south-west towards the periphery of the Great Sand Sea. They were an instructive few days recalled Jackson, and the only mechanical problem with the new vehicles was the track rod, which was bent to go round under the front differential. ‘We tended to have trouble when we hit a soft patch of sand at speed, which of course, threw out the wheel alignment,’

said Jackson. ‘If very bad, the rod required replacing or bending back into shape.’

The Rhodesians’ fitter, a man called ‘Bull’ McFerrier, used ingenuity to resolve the problem, ‘by putting jacks under the track rod at the right place and using the weight of the truck to bend it back into shape’.

In April 1941, the Rhodesians set off on their first major patrol, a 700-mile journey west across the Great Sand Sea to Kufra in southern Libya. The oasis of Kufra had been seized from the Italians by a combined force of Free French and LRDG on the first day of March, but before they reached the oasis, ‘S’ Patrol experienced what Kennedy Shaw described as the most brutal *Qibli* he had ever encountered. A *Qibli* is the Libyan name for the hot wind that sweeps the region, and coupled with that natural heat, the Rhodesians suffered terribly from the Ford’s major defect. ‘In 1940 we had Chevrolets,’ wrote Kennedy Shaw, ‘but the Rhodesians were then in cab-over-engine Fords in which the hot blast from the engine swept straight up into your face and the engine casing had to be insulated to prevent the skin from being burnt off your leg.’

While the Rhodesians were stationed at Kufra in May, ‘Y’ and ‘G’ Patrols were at Siwa, 350 miles north-east. At both oases there were unit workshops under the overall command of Captain ‘Plugs’ Ashdown of the Royal Electrical and Mechanical Engineers (REME). ‘Workshops at Siwa had plenty to do to straighten the chaos of our Ford 30-cwts after mountaineering on hillsides,’ recalled Captain Alastair Timpson of ‘G’ Patrol. ‘A REME[1] fitter was also attached to each Patrol on operations so that he could, with a fair supply of spare parts, effect repairs of some magnitude even in the field.’

In this regard, the fitters were helped by the acquisition of two biplanes (WACOS as in Weaver Aircraft Company of Ohio), which was the brainchild of Major Guy Prendergast. One of Bagnold’s companions in his inter-war exploration of the Libyan Desert, Prendergast arrived as his second in command in early 1941 and purchased the aircraft for £3,000 to maintain a link between the LRDG HQ in Cairo and its remote desert bases. Prendergast and Trevor Barker piloted the aircraft, which could reach speeds of around 140mph, and on occasions they flew spare parts to the fitters in Siwa and Kufra, including replacement engines and gearboxes.

A Chevrolet 1533X2 (left) of 'Y1' Patrol alongside a Ford F30 at Qara in the Qattara Depression. This photograph gives a good indication of the Ford's superior ground clearance but also the reason why it was disliked by so many men in the LRDG – the proximity of the engine to the driver, causing intense heat and, in some cases, scorched legs. The Qattara Depression was 150 miles long and half as broad, described by Bill Kennedy Shaw thus: 'In the basin the heat is stifling... drive your truck two yards from the beaten track and it will be sunk to its axles in the quicksands.' (Ian Chard)

The war in North Africa hadn't gone well for the Allies in May 1941. Rommel's Afrika Korps, which had arrived in Libya three months earlier to support their demoralized Italian Allies, had driven the British out of Halfaya Pass, the strategically important escarpment just inside the Egyptian border with Libya, and Wavell was now planning to counter-attack with Operation *Battleaxe* in mid-June. To assist with his planning the operation, Wavell instructed the LRDG to reconnoitre enemy traffic on the main road through the Jebel Akhdar, the lush countryside overlooking the coastal road.

The LRDG truck repair shop. From the left: Alan Denniff and Ali Barber are third and fourth respectively. Although there was no official repair unit in the LRDG, they recruited a number of highly skilled fitters (mechanics), who were brilliant at repairing the frequently damaged vehicles. (Ian Chard)

'Y' and 'G' Patrols undertook the task, and one of the drivers in the former was Gordon Harrison. 'As a driver I had absolute responsibility for the vehicle,' he recalled. 'So when we stopped at night we had to make sure we had petrol and that the oil was right. The biggest problem we had was tyres. We used to carry loads of tyres, every spare bit of vehicle, including the bumper bar, we had tyres made up. It was because of the tremendous heat. We would set off in the morning with the tyres at 30lb per square inch, and if we stopped after an hour, they had gone up to 40lb. We'd stop, take them back to 30lb, but an hour later they were back to 40lb.'

A Ford F30 of 'Y' Patrol is well and truly stuck in the sand on the crest of a dune. The trick to negotiating a dune, according to 'Y' Patrol's Derek Harrison, was to 'drive like mad up the slope and when you got to the top, you'd slam the brakes on, break the crust away, and then go down the other side making sure your vehicle was straight'. Not in this case! The weapon is a Lewis gun, which, even though of World War I vintage, was reliable and accurate with a rate of fire of 550 rounds per minute. (Ian Chard)

It was laborious work to adjust the tyre pressure so often but it was a chore that couldn't be shirked. 'If you drove at the incorrect tyre pressure they would explode and then we had the job of changing the wheel,' said Harrison. 'On one patrol we ran out of tyres and had to jack up one vehicle and take the tyres off to get home.'

As for the challenge of surmounting the vertiginous dunes of the Great Sand Sea, the tallest of which could measure 300ft, Harrison put into practice what he had been taught by Bagnold on joining the unit. 'We would drive like mad up the slope and when you got to the top, you'd slam the brakes on, break the crust away, and then go down the other side making sure your vehicle was straight otherwise you would go over.'

Operation *Battleaxe* failed in its objective of sweeping the Axis forces out of eastern Libya and relieving the pressure on the besieged port of Tobruk. Nonetheless Rommel was unable to exploit his victory and advance into Egypt because his lines of supply and communication were stretched too thin.

Soon the 'Desert Fox' had a new adversary, as Wavell was replaced as commander-in-chief by General Claude Auchinleck. There was also a change at the top for the LRDG in the summer of 1941 as Bagnold stepped aside for health reasons and Prendergast assumed command.

By mid-October 1941, the LRDG was at Kufra in its entirety and the following month they embarked on a series of surveillance patrols in coordination with Auchinleck's inaugural offensive – Operation *Crusader*, the aim of which was to retake eastern Libya and seize its airfields from the enemy, thereby enabling the RAF to increase their supplies to Malta.

However, Captain Jake Easonsmith's 'R1' Patrol took on another task, searching for the 21 survivors of a daring airborne raid by 55 men of 'L' Detachment, Special Air Service Brigade, under the command of Captain David Stirling.

Chevrolet 1533X2 30-cwt

The failure of the SAS attempt to parachute into Libya and destroy aircraft on five Axis airfields led – at the suggestion of the LRDG – to a change in tactics. In future, Stirling and his men would be transported to their targets in the Ford trucks of the LRDG.

In December, 'S1' Patrol, comprising 19 men and commanded by Captain 'Gus' Holliman, left Jalo to take two SAS raiding parties to the airfields at Tamet and Sirte, 350 miles to the north-west. Holliman's navigator was actually an Englishman called, Mike Sadler, who had recently joined the Rhodesian Patrol. He described the Fords as 'pretty clapped out' and en route to the target it took three hours to cover a 20-mile expanse of rocky broken ground.

This photograph, believed to have been taken in the last week of May 1942, shows 'T' Patrol taking stock of its new Chevrolet 1533X2 30-cwt trucks. Notice the water condenser on the truck nearest to the camera is just by the driver. The grille slates are complete in this photo but most would subsequently be removed by the LRDG. Also visible is the canvas screen that was used to prevent reflection on the windscreen. The latter was exchanged for an aero screen that could be folded down. The Chevy's bar tread tyres were removed and replaced with one of the four patterns of sand treads. (Ian Chard)

The decrepit state of the Fords was laid bare by Prendergast in a memo to Eighth Army HQ on 24 February 1942. The purpose of the missive was to caution against permitting Stirling to raid vehicle parks at various points along the coast between El Agheila and Misurata in Fords borrowed from the LRDG. First, the raid would likely 'stir up trouble' on the coastal road that was under constant surveillance by the LRDG; second, 'the old LRDG Fords which Capt. Stirling is proposing to take are in very bad order. They have all

been in constant use for the past 6 months with little time for overhaul, and they are now on their last legs. I am proposing to have them overhauled by my fitters in course of time, to be used when patrols are required to operate to the farthest westernmost limits.'

Prendergast – like many of the LRDG – admired the bravery of the SAS but he was increasingly irritated by what he considered their reckless pugnacity, charging into areas where his men had stealthily been accruing intelligence on enemy dispositions. But his memo was also a discreet way to draw attention to the state of his unit's vehicles.

It seems to have had the desired effect, and the following month the LRDG took delivery of 200 Chevrolet 1533s. The fitters soon got to work, modifying them to suit the needs of the LRDG. Their bar tread tyres were removed and replaced with one of the four patterns of sand treads used, and the regulation windscreens were exchanged for aero screens that could be folded down and also came with a canvas screen to prevent reflection.

Gun mounts were fitted to each corner of the rear body and centrally, and sand channel brackets were attached to the side of the Chevrolets. By now all drivers wanted their spare wheel on the passengers' side running board (not the back of the truck) and so this was done, as was attaching the water condenser to the radiator and connecting it with a flexible hose.

Bill Kennedy Shaw (left) and Denis ‘Shorty’ Barrett, the respected LRDG quartermaster, with a Chevrolet 1533X2 in the background. Notice the small aero screens that were fitted by the LRDG in place of the windscreens, and the spare wheel attached to the side. Initially it was strapped to the back of trucks but this was found to be impractical. Kennedy Shaw served both as the LRDG’s intelligence officer and also, in the early days, the head of the Heavy Section, a role he later relinquished to Lieutenant Philip Arnold, who was killed in January 1943 when he drove over a mine in Houn. (Author’s Collection)

Believed to be of 'Y1' Patrol by the River Nile, this photo captures the striking contrast between the modernity of the Chevrolet 1533X2 and the horse and cart transport used by the Egyptians. On 9 October 1941 Cyril Richardson of 'G' Patrol described in his diary the day they set out from Cairo for Kufra, 700 miles to the west: 'The trip along the Nile Valley was a wonderful never-to-be-forgotten experience,' he wrote. 'Our trucks, about thirty in all, consisting of Y Patrol, HQ and our own G Patrol, created quite a lot of excitement while passing through the little native villages'. (Ian Chard)

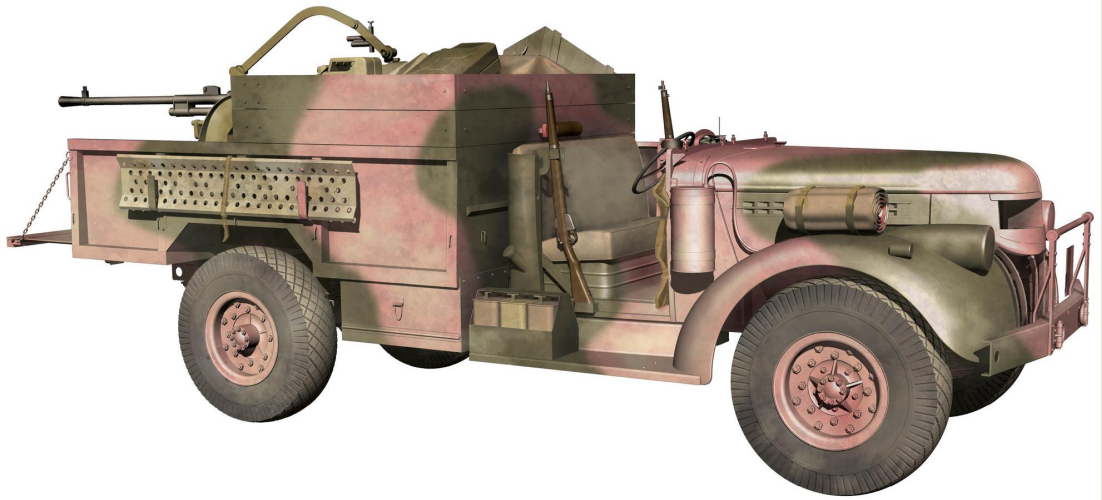
Two features that pleased the LRDG most were the better weight distribution of the Chevrolet compared to the Ford on account of the rear wheels being almost central to the rear body, and, best of all, its 6-cylinder inline engine was no longer next to their legs.

With broader seats, more space for storage, the same payload of 1½ tons and a wheelbase of 134½in, the Chevrolets ceded nothing to the Ford F30 except it was a two-wheel-drive vehicle and not a four-wheel-drive truck. The most significant superiority of the new vehicle was that on a single 20-gallon tank, its maximum range was 240 miles.

‘They were very good trucks,’ remembered Harry Devonshire of ‘Y’ Patrol. ‘They had a special booster gear whereas when you were in trouble with the soft sand you just pulled a lever and it brought all the gears down to a lower ratio, and when you were all right and wanting to speed up you just pulled the lever back and you got the full speed.’ Captain Alistair Timpson also remembered this special feature, and said that as ‘the purists insisted on explaining [it] merely provided an auxiliary gearbox ratio’.

The camouflage had evolved along with the LRDG’s vehicles and the broad dark and light stripes of 1940 had been discarded for lighter tones. Plain yellow or salmon pink were the most common but a few were more elaborate, selecting a colour scheme of blue, green, yellow and pink stripes. Timpson dryly remarked on seeing his truck turned pink, yellow and green that if it didn’t fool enemy pilots it might at least dazzle them long enough for his patrol to make good their escape.

D CHEVROLET 1533X2 30 CWT GUN (BREDA) TRUCK



The Chevrolets came into service with the LRDG in early 1942 and proved a hit with the men. Although they were two-wheeled drive, they had better weight distribution than the Ford on account of the rear wheels being almost central to the rear body, and the 6-cylinder inline engine not being situated next to the soldiers' legs. 'They were very good vehicles,' recalled Jim Patch, of 'Y' Patrol. 'They had a sort of overdrive, which was very useful when the going was good, and they were very fast. When the land was flat with not even an undulation you could set the hand throttle, and the driver didn't have to bother

any longer. I saw vehicles going along with all four crew members sitting on the back and no one in the driving cab.'

Y1 Patrol of Chevrolet 1533X2 30-cwt in column shortly before departure to an unknown destination. The front appears to have a Browning AN M2 .30 machine gun in the front passenger seat. (Ian Chard)

This Chevy boasts a Breda Modello 35 20mm, an Italian anti-tank gun that from 1941 onwards replaced the Bofors on LRDG patrol trucks and was more effective against enemy aircraft.

A 15-cwt 1311 Chevrolet, one of a consignment of 25 that arrived from India. This photograph was taken at the end of May 1942, when the LRDG was using these vehicles as command or

pilot cars prior to the arrival of the Willys jeep. The vehicle in the background is a 30-cwt 1533X2 Chevrolet. The 'baby Chev' differed from the 1533X2 in having a shorter wheelbase and a smaller rear load area, as well as slight differences in the design of the cab. (Ian Chard)

Some of 'Y' Patrol had copied the New Zealanders and Rhodesians in naming their trucks, although they weren't as sentimental as their Commonwealth cousins. Instead of place names or cultural references they displayed a touch of British irreverence: *Cock of the North* was the name of one truck, and others included *Who Cares*, *Tipperary Tim* and *Nemesis*.

Lofty Carr, 'Y' Patrol's First Navigator, was smitten by the new Chevrolet from the start. 'They were wonderful vehicles,' he remembered. 'Very tough, with the chassis specially shortened for us so that we could get over obstacles, such as rocks, etc. They were moving towards what the jeeps became.'

Taken somewhere in Libya, in early February 1943, this photo shows 'Y' Patrol and its Chevrolet 1533X2 30-cwt trucks. It is interesting to note the truck on the left has a sand channel strapped to its radiator while the Chevrolet to the right and behind has a spare well in this position. It was left to each truck to decide how and where to accommodate the equipment. (Ian Chard)

As for armaments, Timpson said that by the spring of 1942 the Lewis gun 'had gone right out of fashion'. It lacked firepower and so most of the LRDG chose between a .303 Browning, a gas-operated Vickers and a water-cooled Vickers, both 0.5in and .303in.

At the end of March, Timpson led 'G2' Patrol from Siwa to conduct a census of enemy traffic on the coastal road near El Agheila which had been

ongoing for several weeks and would last in total for four months. He found the new Chevrolets fast and reliable but they weren't without their drawbacks. The fact they were two-wheeled 'rendered every journey through soft sand or over mud flats arduous'. Secondly, the rear wheels being almost central to the rear body was better for weight distribution but it meant that the centre of gravity was near the rear axle and this caused numerous blowouts of the back tyres when the Chevrolets were overloaded.

The problem with blowouts, Timpson discovered (and David Lloyd Owen as well), became worse in the summer when the temperature increased and, with it, the tyre pressure. 'Goodyear and Dunlop tyres stood the strain fairly successfully of carrying 30-cwt trucks loaded to a capacity of 3 tons even on the hot sand,' wrote Timpson. 'But a new type with which we had been issued cracked and burst at an anxious rate.'

Timpson neglected to mention the tyre in question, but Mike Sadler – who transferred from the LRDG to the SAS in the early summer of 1942 – recalled that they had similar problems with tyres on their new Willys jeep, 'We had a great deal of trouble with tyres when we first got the jeeps,' said Sadler. 'I remember David Stirling saying at one point "Thank God that is the last of the Mohawks."' Lloyd Owen believed it was due to a 'very poor batch' of the Mohawk tyre that they had been given.

Nonetheless, the fitters attached to each patrol were usually able to rectify even the most daunting of defects. Timpson said that 'G' Patrol's fitters 'performed miracles of engineering at times' and could fashion replacement track rods or universal joints out of the most unlikely of items. Bill Johnson, whose ingenuity served both 'R' and 'S' Patrols, recalled: 'In the desert all patrol fitters had to carry a variety of spares before setting off on a trip. These included clutches, carbs, water pumps, fan belts, plugs, coils, distributors, etc.'

On one occasion a driver on a patrol thought he knew more about engines than Johnson and spent a good hour under the bonnet of his Chevrolet. 'He wanted his truck to go faster,' recalled the fitter. 'And he made no secret that it was in case we got chased.' Eventually his tinkering led to the loss of the rotor arm, and the nervous driver sheepishly asked Johnson if he had a spare. Johnson didn't but the patrol commander refused to countenance abandoning the truck. Johnson put his mind to the problem: 'From my thoughts there emerged a cork out of a beer bottle and a safety pin out of the first aid kit," he wrote. "With a razor blade I fashioned the cork and with a pair of pliers I

bent the safety pin. The engine leapt into life.' It was the last time the driver tinkered with his engine.

A group of LRDG fitters. These were the unsung heroes of the LRDG and worked wonders to service and maintain the vehicles. Their ingenuity was legendary and on one occasion Bill Johnson kept a truck going for 900 miles thanks to nothing more than a few banana skins. Notice the jerrycan in the foreground of this photo. Initially the LRDG petrol was stored in four-gallon 'expendable' tins, two tins to a wooden packing case. Then they began using captured German jerrycans. Rod Matthews of 'Y' Patrol remembered them as 'made out of a very strong metal with a thick metal rounded corner and a very good clip top.' (Ian Chard)

Believed to have been taken in late 1942 or early 1943, this photo is of two members of General Erwin Rommel's *Kampstaffel* in a captured LRDG jeep. As was common, all but two of the slats have been removed from the front grille to improve air cooling. The water condenser is attached to the front grille and is connected to the radiator header tank by a pipe.

The Afrika Korps captured a number of the LRDG in December 1942 when the New Zealand 'T2' Patrol ran into the *Kampstaffel* on the Tripoli Road as the latter withdrew west. (Author's Collection)

On another occasion Johnson made running repairs on a cracked gearbox using the skins of bananas bartered from a Bedouin shepherd who happened to be passing. 'I removed the top of the gearbox and stuffed it with the skins,' reminisced Johnson. 'This enabled us to continue our journey and we did almost 900 miles before a replacement gearbox was fitted at base.'

The road watch on which the LRDG had been engaged continuously since March 2 was curtailed at the end of July. The ebb and tide of the war was moving in Rommel's favour and it was pointless to continue surveying the El Agheila coastal road.

An LRDG Chevrolet at Siwa Oasis, which was the preferred base for the LRDG during the war. It had dates, artesian wells (ideal for bathing) and a hospitable population. Bill Kennedy Shaw described its dwellings thus: 'The housewalls are made of a mixture of mud and salt, effective in a rainless climate, piled up on one another or on the ruins of earlier buildings from the foot to the summit of the hill.' (Author's Collection)

The previous month, June 1942, Rommel had launched a major offensive against the Allies' left flank in alliance with the Italian X and XXI Corps. After three days of sustained fighting, the Afrika Korps' armour won the decisive engagement on what became known to the Allies as 'Black Saturday'. The Eighth Army fell back from the Gazala Line in the 'Gazala Gallop', withdrawing to a line between a coastal town called El Alamein

and the edge of a large salt marsh called the Qattara Depression. For the LRDG the retreat meant that they had to vacate Siwa Oasis, which had been one of their bases for more than a year.

The Axis advance forced the LRDG not only to change their base but also to alter their modus operandi now that the Allies were on the back foot in the Desert War.

Willys MB Jeep

In the first six months of 1942 the SAS, in co-operation with the LRDG, had destroyed 143 enemy aircraft. The former affectionately called their partners the 'Long Range Taxi Service', and while the LRDG respected the martial prowess of the SAS, Lieutenant-Colonel Prendergast's patience was wearing thin. 'One cannot blame Prendergast for being a little sour,' recalled Alistair Timpson.

Relying on the LRDG for their transport also stifled the SAS's ambitions, so it was to everyone's relief when in July David Stirling procured a consignment of American-built Willys jeeps, at the suggestion of his second in command, Blair 'Paddy' Mayne, who recognized their potential for inflicting damage on the Axis forces.

The vehicle had gone into production the previous year in the USA at the request of the army which wanted a powerful and versatile four-wheeled-drive vehicle. Three manufacturers were involved in its construction – Bantam, Willys and Ford – and in the autumn of 1941, Lt. E.P. Hogan of the US Quartermaster Corps said credit for the jeep belonged to no 'single individual or manufacturer... [the] vehicle is the result of much research and many tests'.

A mixed patrol of LRDG and the Greek Sacred Squadron in early 1943 in Willys jeeps. The lead jeep has two single Vickers while the jeep behind has a gas-operated Vickers K. Notice the tin helmet by the driver's seat. (Author's Collection)

The SAS's first significant success with its new transport was on the night of 26–27 July when 18 jeeps drove onto the landing strip at Sidi Haneish, an airfield approximately 30 miles east-south-east of Mersa Matruh, and destroyed or damaged 30 Axis aircraft for the loss of just one man.

Ironically, in the opinion of David Lloyd Owen, the advent of the jeep marked the start of the gradual decline in the potency of the SAS in North Africa. 'From the moment [Stirling] began to get his own transport, and became independent of the LRDG, he began to lose his effectiveness because he necessarily had to concern himself with the mechanics of administration,' wrote Lloyd Owen. 'David Stirling was a magnificent fighting leader, but the tedious business of worrying where the food, the ammunition, the communications, the fuel and water were to come from was something with which he did not want to concern himself. Up until then the LRDG had done all that for him.'

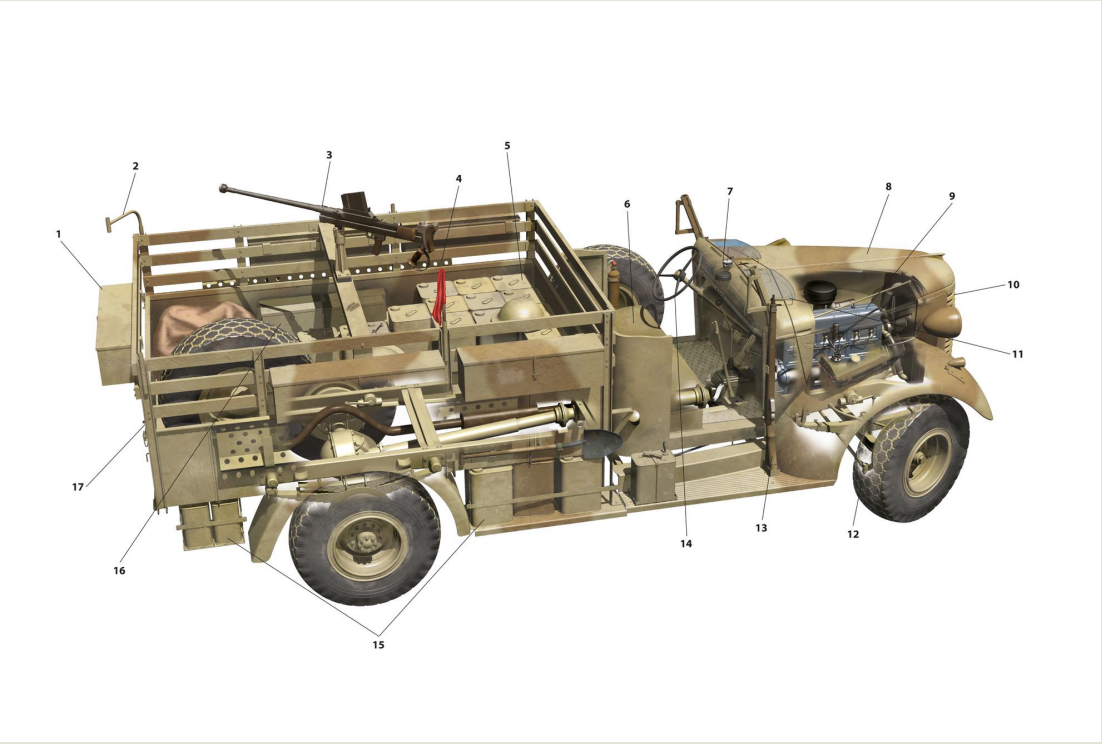
Nonetheless, the LRDG liked what they saw of the Willys jeeps (Timpson said that they 'had been envious of the SAS for their jeeps for quite a while') and soon they had their own fleet, more often than not using them as pilot cars. Like the SAS, the LRDG removed the canvas roof, windscreen, side screens and doors from their jeeps, which had a 60 HP 4-cylinder engine. The water condenser was attached to the front grille, having first removed all but two of the grille slats to improve air cooling. A pipe connected it to the radiator header tank. Capable of travelling 240 miles on a single 15-gallon tank, the jeeps used by the SAS carried additional fuel in jerrycan racks attached to the rear internal mudguards with five more cans strapped horizontally to the bonnet; the LRDG preferred to stash theirs in the rear. The sun compass was bolted to the dashboard and ammunition, oil, water, rations and extra clothing stowed inside the vehicle. The total weight for LRDG jeeps was around 2 tons, and it was soon discovered, on road-testing the jeeps, that additional springs were imperative to accommodate this tonnage.

Disgruntled members of 'Y' Patrol work up a sweat pushing a broken-down Ford F30. The Ford trucks were replaced by the Chevrolet 1533X2 in the spring of 1942, but the Fords made a comeback in the autumn after a disproportionately high number of Chevys were lost on the raids on Barce, Tobruk and Benghazi. (Ian Chard)

The SAS mounted one dual Vickers K gun in front of the passenger's seat, by means of a pipe that came up from the floor, through the glovebox and front scuttle, another in the rear facing back and a single Vickers mounted on the driver's wing. The LRDG jeeps in most cases had just one front-facing single Vickers or .50cal Browning.

Timpson noted that the maximum range of a 30-cwt truck carrying its own fuel was 'about 1500 miles, while a jeep can be self-supporting for only 900, if fitted with an extra tank'. To circumvent this limitation, two Mack NR9 10-ton trucks from the Heavy Section were attached to patrols.

E WILLYS JEEP



Key

1. Personal kit storage
2. Rear gun mount
3. The Boys Mk1 AT Rifle on centre pintle
4. Steel sand channel, 5ft by 11in
5. Four-gallon tins of petrol
6. Bench seat
7. Sun and magnetic compasses
8. Light brown and azure camouflage pattern
9. 216 CI 6 - cylinder inline
10. Front grille cut away to improve air flow through radiator
11. Foldable aero screens
12. 10.50X16 sand tyres and 133” wheelbase
13. Lee-Enfield rifle
14. Left-hand steering
15. Four-gallon tins of petrol

16. Boys ammunition boxes
17. Reinforced, hinged tailgate

Capable of travelling 240 miles on a single 15-gallon tank, the Willys jeep was introduced into North Africa by the SAS in the summer of 1942. The LRDG subsequently acquired a number of this efficient and robust vehicle. The sun compass was bolted to the dashboard and ammunition, oil, water, rations and extra clothing stowed inside the vehicle. The total weight for LRDG jeeps was around 2 tons, and it was soon discovered on road-testing the jeeps that additional springs were imperative to accommodate this tonnage.

Willys jeep specifications	
Engine	60hp Willys 'Go Devil' 4-cylinder
Gears	Three forward, one reverse
Fuel capacity	15-gallon tank
Mpg	16
Wheelbase	80in
Payload	600lbs
Tyres	6x16
Max range on a single tank of fuel	240 miles

The first opportunity for the LRDG to use their jeeps in any significant number was in September, as part of an ambitious series of raids planned by General Bernard Montgomery, the new commander of the Eighth Army, ahead of his autumn offensive at El Alamein. Montgomery's objective was to launch simultaneous attacks against the ports of Tobruk and Benghazi, and an airfield at Barce (now called El Marj), 40 miles north-east of Benghazi, in order to hinder the Axis' ability to bring in supplies across the Mediterranean.

Men of 'T1' Patrol pose for the camera on 12 January 1943. Under the command of the redoubtable Nick Wilder, they undertook a vital reconnaissance patrol for Bernard Montgomery that enabled the Eighth Army to launch a 'left hook' on the Axis forces on the Mareth Line. Setting out in Chevrolets and jeeps, 'T1' was forced on 15 January to continue on foot, so bad was the terrain. But on 19 January, they discovered a clear gap through the escarpment that was passable for vehicles, a route that proved of great value to General Montgomery. (Ian Chard)

The only raid that met with any degree of success was the purely-LRDG attack on Barce. Commanded by Jake Easonsmith, it comprised 47 men of 'T1' and 'G1' patrols travelling in 12 trucks and five jeeps. Two of these trucks were Macks that travelled the first 250 miles with the raiding party from Fayoum to Ain Dalla, close to the edge of the Sand Sea. Here the jeeps refuelled, recalled Timpson, and five days later on the other side of the Sand Sea, they refuelled once more, this time with petrol brought from Kufra by the LRDG's Heavy Section. Thereafter Easonsmith's patrol was reliant on what petrol they could carry.

The jeeps negotiated the 1,155 miles of desert (although Timpson crashed his when he took a sand dune too incautiously, leaving one of his men, Thomas Wann, paralysed for life) and once at the target they destroyed or damaged 24 aircraft and inflicted numerous casualties on the Italian garrison. Easonsmith, in particular, prospered from the mobility of his jeep, roaring through the town to ‘shoot up anything they could find’.

F WILLYS JEEP IN ACTION

The LRDG used the jeep mainly for reconnaissance, notably when Captain Nick Wilder led a patrol into Tunisia in January 1943, blazing a trail that the Eighth Army would soon follow as they chased the Axis forces north. Occasionally, however, the LRDG emulated the SAS in deploying the jeep on offensive operations, such as the raid on Barce in September 1942 when Captain Jake Easonsmith's patrol entered the town to 'shoot up anything they could find'

However, the raids had been costly, particularly in terms of vehicle loss. So short were the LRDG of trucks, they had to bring the Ford F30s out of retirement in order to carry out road watches to complement the start of the El Alamein offensive in November 1942. But when the LRDG salvaged what they could from a dump in Cairo the men were startled by the state of the Fords; some didn't even make it back from the dump to the LRDG base. The ones that were fit for purpose were modified to bring their centralized weight over the rear wheels in line with the Chevrolets; this was done by moving the bucks back about 12in, which also created more space behind the cab for two spare wheels.

One of the men on the Barce raid was Captain Nick Wilder, one of the few New Zealand officers left in the unit. Wounded in the attack, he had recovered by January 1943 to lead the first LRDG patrol into Tunisia to reconnoitre a route for the Eighth Army's advance. The going was tough for 'T1' Patrol, and it's questionable whether any vehicle other than their jeeps could have overcome the terrain. By 15 January, however, the route had become impassable even to the Willys, so Wilder and his men continued their reconnaissance on foot in three parties. On 19 January they found a 'clear gap through the escarpment, passable for MT [Motor Transport]', which was 25 miles south-west of Foum Tatahouine.

Two months later, on 20 March, the Eighth Army launched a frontal attack on the Mareth Line. It was checked initially but the New Zealand Division, guided by the jeeps of Ron Tinker's 'T2' Patrol, along the route pioneered by Wilder, landed a 'left hook' on the Afrika Korps, capturing El Hamma, 18 miles west of Gabes, on 28 March. The Mareth Line had been breached and defeat was now inevitable for Rommel.

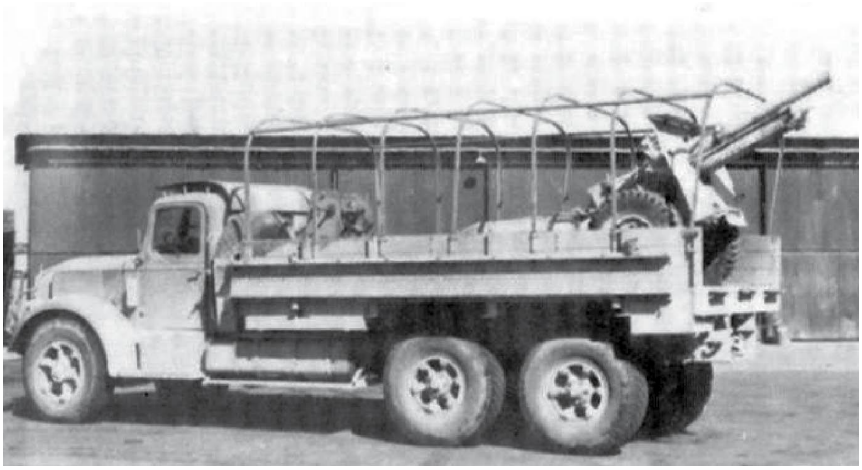
General Montgomery was delighted. 'My dear Prendergast,' he wrote to the commanding officer of the LRDG. 'I would like you to know how much I appreciate the excellent work done by your patrols... without your careful and reliable reports the launching of the "left hook" by the NZ Division would have been a leap in the dark; with the information they produced, the operation could be planned with some certainty and as you know, went off without a hitch.'

Note

1 In fact it wasn't until 1942 that the REME undertook this work; in 1941 it was still the Royal Army Ordnance Corps.

THE HEAVY SECTION AND THE MACK NR4

The LRDG Artillery Section was the brainchild of Ralph Bagnold, shortly after he relinquished command of the unit to Guy Prendergast in August 1941. In an article written for the LRDG journal in 1978, Prendergast explained that Bagnold was given an office in Cairo where he 'used to think of ways in which we might be helped'. One of these was an artillery section, commanded by Second Lieutenant Paul 'Blitz' Eitzen, 'which was armed with a 4.5in howitzer carried on a 10-ton lorry, and had also a light tank to be used as an armoured OP [Observation Post]'. Unfortunately, the howitzer and the tank were soon given to the Free French and instead the Artillery section took possession of a 25-pdr.



Mack NR4 and the Artillery Section had a brief existence in the LRDG, one of the few Bagnold brainwaves that didn't pay off. An American lorry produced by Mack Trucks that had been used by the British since the start of the Desert War, the NR4 had mounted in its rear a 25-pdr under the command of Lieutenant Paul 'Blitz' Eitzen. Alas, its one outing was in November 1941 against an Italian fort. The Mack was so heavy that it repeatedly became stuck on the journey to and from the target, until eventually it was decided to remove the field gun and abandon the truck. (John Valenti – The LRDG Preservation Society)

This field gun was mounted on a Mack NR4, an American lorry produced by Mack Trucks that had been used by the British since the start of the Desert War. The NR4 was manufactured specifically for tank transport, as opposed to the NR3 that was used for long-distance transport in the Middle East.

The two models had the same dimensions – 27ft in length, 8ft 6in wide and 8ft 2in high – but the NR4 had a flat-floor cargo area, a winch, and ramps with which to hoist the tank to the cargo area. Empty, the vehicle weighed 11.7 metric tons, and the maximum weight load was around 22.7 tons, able to transport the M3 Stuart light tank, the Cruiser Mk II A10, and Valentine tank.

One of the men in the artillery section was Bill Morrison, who recalled that their inaugural mission in November 1941 was against an Italian fort, to which they were accompanied by a Rhodesian Patrol. 'The Mack was heavy,' said Morrison. 'One [desert] track over a gap had been laid with heavy wire mesh but it rolled up under the lorry, pulling the leads from the air brakes and stopping everything. We were not popular with the Rhodesians.'

Once they arrived at the target, they concealed the 25-pdr behind a hill and Jim Patch ran a telephone cable up to the brow, from where Eitzen calculated the range and gave the order to fire. The Rhodesians stormed the fort after the first salvo but found only four terrified conscripted Senussi inside. 'We laid a few explosive charges and went off,' recalled Patch. 'After that the ten-tonner became a bit of a burden. It was so heavy that it couldn't cope with the soft sand and kept on getting stuck. This ten-tonner was so heavy it bent the sand trays [that were put in front of the driving wheels] One time it got stuck so badly, well up in enemy territory, that John Olivey [the Rhodesians' commander] said 'we'll leave the thing'. So we took the gun off and all the ammo, towed the gun behind one of the patrol vehicles and that was the end of that.'

The artillery section was disbanded, one of the few ideas of Bagnold's that didn't work out.

The Heavy Section

From the outset, Bagnold had realized that the amount of supplies required while the LRDG conducted operations would mean one of the three patrols would have to be assigned to this task. This didn't sit well with intrepid men who had volunteered because they were sold on the idea of carrying out daring reconnaissance missions deep inside enemy territory – not to mention the odd bit of 'piracy', as Bagnold himself described it to General Wavell. Yet instead of pirates they were porters, and understandably that created some resentment.

Bill Kennedy Shaw was put in command of the LRDG's Heavy Section initially by Bagnold in the summer of 1940, comprising six New Zealanders driving four 6x6 Marmon-Herringtons, thanks to the generosity of the Southern Mediterranean Oil Company. The vehicles were found to be efficient and robust, with little modification required to make them desert-ready other than the water condenser. But such was their workload in the first few months of the LRDG's existence that they were worn out by the start of 1941 and the LRDG replaced them with a quartet of 10-ton White 6x4 trucks. (John Valenti – The LRDG Preservation Society)

It also reduced by a third the effectiveness of the LRDG, and so in September 1940, Bagnold formed the Supply and Transport Section, or 'Heavy Section' as it was better known. Bill Kennedy Shaw, the unit's Intelligence Officer, took on the responsibility of commanding the section until Lieutenant Philip Arnold took over in 1941 and 'really made it what it was'. That was Kennedy Shaw's assessment, who said that Arnold possessed all the qualifications for the job. 'Half-French, half-English, naturally perfect in both tongues and a good Arabic speaker too, there was little he did not know about getting trucks,' said Kennedy Shaw. 'His last peace-time job was with an American mining company which was successfully extracting gold from the barren hills between Mecca and Medina. Philip ran their transport for them and once a month took the gold right across Arabia to be shipped from the Persian Gulf ports.'

The 10-ton White 6x4 trucks, donated by the Royal Army Service Corps, replaced the Marmon Herrington trucks of the LRDG's Heavy Section in early 1941 and they were nowhere near as popular as their predecessor. The heaviest vehicles used by the Heavy Section, the Whites, were described as a 'cargo carrier' and had additional four-ton payload and no front-wheel drive. Among its other specifications was a wheelbase of 200in, a top speed of 39mph and its cruising range of 750 miles. They were built by the White Motor Company of Ohio, USA. (John Valenti – The LRDG Preservation Society)

Initially, Kennedy Shaw and the six New Zealanders who comprised the Heavy Section used four 6x6 Marmon-Herringtons, thanks to the generosity of the Southern Mediterranean Oil Company. The American company had made its name as a manufacturer of fast cars (the Marmon Wasp won the first Indianapolis 500 in 1911) but the Great Depression had hit the luxury car market hard so the Marmon Car Company struck a partnership with Arthur Herrington, a retired military engineer, to design all-wheel-drive vehicles.

They proved ideal for desert travel and all the LRDG did by way of modifying the 6x6 Marmon-Herrington was to attach the water condensers to the radiator.

Six Mack 10-ton diesels did sterling work for the Heavy Section in late 1942, along with 20 Chevrolets, covering great distances transporting supplies from Kufra to Cairo and Tobruk. Commercially designed heavy-duty trucks, the Mack 10 L Series was introduced in 1940 and had wide tandem rear axles to accommodate oversize single rear tyres. Note the surface on which the truck is travelling; known as *serir* in Arabic, this hard gravel surface was good to travel on because the wind had removed the sand, a process known as 'deflation'. (John Valenti – The LRDG Preservation Society)

The four vehicles had been worn out by early 1941 and in their stead the LRDG replaced them with a quartet of 10-ton White 6x4 trucks, donated by the Royal Army Service Corps. These were the heaviest vehicles used by the Heavy Section and they weren't popular because of additional 4-ton payload and the absence of a front-wheel drive.

In 1942, four Mack NR9 trucks came into service along with 20 (delivered in two batches of ten) Ford F60 3-tonners with a No.12 cab design. In an article in a 2005 issue of *Mars and Minerva*, the regimental journal of the SAS, written by Paul Lincoln, the F60 was described as 'the same as the Ford F30 patrol truck but with a body 2in longer and of a slightly different design. Modifications were to crew taste and often included removal of cab parts and additions of machine guns'.

The F30 was also used by the SAS from the summer of 1942 onwards, when they became self-sufficient, although the No.13 cab design had replaced its predecessor and was much appreciated because the windscreen sloped the other way and so the sun's rays didn't shine directly on the glass. By December 1942 the Heavy Section (sometimes referred to in communiqués as 'B' Echelon) comprised 20 Chevrolets and six 10-ton

Macks, organized into four detachments known as HS 1, 2, 3 and 4. During the Allied advance west in the late autumn of 1942, it did admirable work in transporting supplies from Kufra to Cairo and Tobruk, and ‘forward dumping from Houn to points nearly as far west as the Tunisian frontier’.[2] It was in Houn on 15 January that Philip Arnold was killed when he drove over a mine.

Note

2 Public Records Office 201

ANCILLARY AND SUPPORT VEHICLES

Medical truck

The medical truck was the pride and joy of Captain Richard Lawson, who became the LRDG's medical officer in December 1941. 'Doc' was hugely respected among the unit for his skill and his courage and his medical equipment was stored in a 1311 Chevrolet. Until his arrival, one of the patrol's trucks had carried the necessary medical kit in a specially cooled compartment with a stretcher strapped to the side of the vehicle. This was wholly inadequate and so Lawson was recruited and a truck converted into a Medical Inspection (MI) room, which would carry drugs and equipment above the standard load of 28 gallons of water and 16 jerrycans of petrol. 'To do this a 15-cwt Indian pattern Chevrolet was built up to 4ft 6in from the floor with wood and a canvas & iron super structure was added making the height 4ft 9in for travelling and 6ft for use as an MI room,' wrote Lawson. 'The floor area is 6ft square. All drugs and equipment were fitted into solo padded boxes keeping them firm while moving. When stationary these boxes could be unbolted and moved into permanent buildings.'

Taken on 13 July 1942, this photograph shows Guardsman Murray being collected by the LRDG's medical truck. Murray had been the driver of a 'G2' Patrol Chevrolet strafed by an Italian Macchi fighter as they escorted two SAS parties towards airfields at Fuka and Daba. Killed in the same attack was Lieutenant Robin Gurdon, who had recently joined the LRDG. Murray was evacuated to Cairo with a serious arm wound but he survived. It wasn't the custom for the LRDG's Medical Officer, Doc Lawson, to travel with patrols and Gurdon died before the SAS MO, Malcolm Pleydell, could treat him. (Author's Collection)

The most seriously wounded, sick or injured were evacuated by air in one of the two WACO biplanes acquired by the LRDG. Otherwise they endured a long journey back to Cairo in the back of the medical truck. ‘The desert surface varied from firm smooth surface of many miles to atrocious rough limestone belts of deep soft sand from which the trucks must be dug and run on steel trays to firmer areas,’ wrote Lawson. ‘After various trials it was found that if a truck was emptied and filled with sand till the springs were almost flat and the patient layed in the sand deeply enough to fix his position he travelled comfortably. One guardsman with a compound fracture of the tibia and fibula travelled over 1000 miles like this and later returned to the unit to become a sergeant in his old patrol.’

Radio truck

On every patrol one of the vehicles was fitted with a No.11 Radio Set for communication with headquarters. Lofty Carr, ‘Y’ Patrol’s First Navigator, recalled that they used commercial procedure when communicating and not military procedure, ‘because the LRDG’s cover was a wool-trading company, trading wool from West Africa to the Nile’. Coded messages were decoded by the Signals Section, ably led by Captain Tim Heywood, who arrived in early 1941 along with a sergeant and an instrument mechanic. The wirelesses were fitted inside a compartment in the front right of the truck’s body, which in the Ford F30 meant removing the complete side of the truck body to access the wireless. The 1533 Chevrolets came with a compartment affording easy access by means of a hatch that could be opened without removing any equipment that might be strapped to the side of the truck. The other essential feature of the wireless trucks was its Philips receiver, which monitored the BBC’s time signal and was a key navigational tool in the desert.

A Ford 4x4 radio truck. The No.11 wireless set was in a side compartment and in this photograph the signaller is at work. While waiting for a consignment of 1311 Chevrolets to arrive from India, LRDG founder Ralph Bagnold wrote to MEHQ in Cairo asking for the 'immediate issue' of what he described as six Ford Wireless Trucks because they were 'the nearest available thing to what is required'. Calling the matter 'urgent', Bagnold added the vehicles were required to put the unit in 'first class condition' as soon as was possible. (John Valenti – The LRDG Preservation Society)

The Rhodesian patrol strike out in their radio truck, a Chevrolet 1533X2. The wireless set No.11 was stored in a specially designed compartment cut into the side of the truck in front of the rear wheel. The antenna poles are stored horizontally along the length of the vehicle. The No.11 wireless was a low power portable transceiver developed in 1938 with a standard maximum range of approximately 20 miles unless especially rigged for longer range with a 6ft rod antenna. Tim Heywood was the Signals officer recruited by Ralph Bagnold and most signallers were from New Zealand's Divisional Cavalry or the Royal Corps of Signals. (John Valenti – The LRDG Preservation Society)

Bofors and Breda truck

As Ralph Bagnold had promised Wavell some ‘piracy’ against the Italians when outlining his scheme to the general in June 1940, it was only right and proper that he equipped his patrols with the tools to fire a 20th-century ‘broadside’ at the enemy. The 37mm Bofors QuickFire (QF) was mounted in the bed of the rear Chevrolet WB of each patrol (and later the Ford F30).They weren’t popular with the men because of their weight and their bulk, as well as their 45 rounds each of Armour Piercing and High Explosive shells. If they had encountered any worthwhile targets in 1940, the LRDG might have revised their opinion, but the Bofors was rarely used. One exception was during the attack and capture of the fort at Murzuk in January 1941 by Pat Clayton’s force. In the weeks that followed that raid, the Italians were driven out of Cyrenaica (eastern Libya) and a number of Breda Modello 35 20mm guns fell into British hands. These efficient anti-tank guns largely replaced the Bofors on LRDG patrols and proved more effective against marauding aircraft than the former. For this reason, they were more popular with the men (all of whom feared air attack above all else in the Desert War), and their rate of fire and lighter weight also made the Breda a more practical weapon.

This photo, taken of a Ford Bofors truck in 1941, shows Alf Withers (left) and Brian Springford (right) of ‘Y’ Patrol. Springford was from Bristol and was the driver for the patrol commander of ‘Y2’, David Lloyd Owen. The Bofors was a single-shot gun and rarely saw action on patrols. Its size and weight made it unpopular with the LRDG as did the fact that, while it was effective against armoured vehicles at short range, it was deficient as an anti-aircraft weapon. Attack by

aircraft was the greatest fear of the LRDG on patrol and the Breda 20mm offered them more protection in that respect. (Ian Chard)

Whereas the Bofors could fire only out of the back of the truck, the Breda was capable of traversing 360 degrees horizontally and 180 degrees vertically, although to accommodate this arc of fire the sides of the truck had to be modified. Such was the power of the gun's recoil that the wheels of the truck lifted off the ground and the average life expectancy of the Breda truck was reduced as a result. A belt-fed design with 10-clip magazines, the Breda was fired using a foot-operated trigger and for the maximum rate of fire the gunner's assistant had to change cartridges with the utmost haste.

The LRDG started out with the 37mm Bofors as their heavy weapon of choice, but in early 1941 they began increasingly to use the 20mm Breda, after liberating a quantity following a series of victories against Italian forces. Mounted in the back of a 1533X2 truck, the Breda was a dual-purpose 20mm cannon for use against tanks and aircraft, which was popular with the men because of its increased power and its rate of fire. It was known for the wheels of Chevrolets to lift off the ground when the Breda was in action and the trucks suffered as a result. (Private Collection)

TRICKS OF THE TRADE

The Long Range Desert Group gave the Eighth Army in North Africa more than just ‘eyes and ears’. The innovations that Bagnold introduced to patrols were quickly incorporated into other British and Commonwealth regiments so that the desert became a less daunting territory.

Water condensers

These were invented by the men of the Light Car Patrol in World War I, as Captain E.H. James explained in his memoirs *The Motor Patrol*. ‘In order not to waste any of the precious liquid in the radiators of the car, we fitted condensers to the radiator caps and closed up the overflow pipes,’ he wrote. ‘The condensed water being caught in a 2-gallon patrol can and returned at intervals to the radiator again.’

Bagnold used the same method to recycle water during his forays into the desert in the 1920s and 30s, and fitted water condensers to the radiators of all LRDG vehicles. ‘From the top of the radiator, the overflow pipe of which was blocked up, a rubber tube led into a two-gallon can bolted to the running-board and half-filled with water,’ recalled Bill Kennedy Shaw. ‘When the water in the radiator boiled the steam condensed in this can, and when it had ceased boiling the vacuum in the radiator would suck the water back and fill it up again. If all the joints were air-tight there would be no need to “top up” the radiator for hundreds of miles.’

G DIGGING OUT A CHEVROLET TRUCK

The bane of every LRDG patrolman's life was getting stuck in the sand but help was at hand, and not just in the shape of a shovel. Sand channels were an invention of Ralph Bagnold from his years exploring the Libyan desert in the 1920s and 1930s. At first, he used rope ladders but they were only partially successful. Then in a Cairo junk shop he spotted some steel channel sections, 5ft long and 11in wide, which had been used to roof trench dugouts during World War I. 'We found them to be the perfect answer to the sand problem,' explained Bagnold. First the men dug out some of the sand from in front of each rear wheel, sloping downward to the base of each tyre. 'A channel section was laid in each valley, on which the wheels could bite as the car accelerated forward,' explained Bagnold. 'This usually carried the car well beyond the front ends of the channel.'

Lunch in the desert was taken at midday if possible because that was when the sun was directly overhead and cast no shadow, making the sun compass ineffective. Here some men eat in the shade of their Chevrolet. Of note is the variety of headgear worn by the men: a bush hat, a service cap and the local headdress, Keffiyeh, are all in evidence, even though the last of these in general was rarely worn because while it was excellent at keeping out sand, it was uncomfortable in hot weather and prone to get tangled in the engine or the weapons. (Author's Collection)

Sun compass

Kennedy Shaw called the Light Car Patrol 'our pioneers' and with good reason. Not only were they responsible for the water condenser but they also devised the sun compass, which Bagnold refined during his inter-war exploration. 'Simply, it was a knitting needle set vertically in the centre of a horizontal white shadow disc, 3 inches in diameter,' he wrote. 'The face of the disc was graduated in 360 degrees of bearing, and the disc could be rotated in its fixed mounting to follow the sun through the day from east through south to west, according to a card giving the sun's azimuth every 10 minutes of the day.' As it was imperative that the sun's shadow was always visible, the compass was fixed on the vehicles' dashboards (the jeeps and trucks had neither windscreen nor roof). The only time when the shadow disappeared was at midday when it was directly overhead and cast no shadow. Thus 12.00pm was when LRDG patrols stopped for lunch.

Men of 'Y1' Patrol dig out *Chattanooga Choo Choo* from the sand in 1942. This Chevrolet 1533X2 truck was named after a 1941 big band hit song by Glenn Miller and His Orchestra that featured in the movie *Sun Valley Serenade* of the same year. Judging from the way that the men are dressed and the jeep's equipment is protected, a sandstorm has just passed through. A sand channel is visible to the right of the truck. In an extreme case such as this, the sand would have to be cleared from the front of the truck before the channel could be placed in front of the rear wheels. (Ian Chard)

Sand channels

Devised in 1929 by Bagnold, in collaboration with Pat Clayton, they were initially 'rope ladders with bamboo rungs'. This design proved insufficiently sturdy, so when Bagnold spotted in a Cairo junk shop some steel channel sections, 5ft long by 11in wide, he snapped them up. 'They had been intended for roofing dugouts during the 14–18 war,' he explained. 'We found them to be the perfect answer to the sand problem. A little valley would be scooped out by hand from in front of each rear wheel, sloping downward to the base of each tyre. A channel section was laid in each valley, on which the wheels could bite as the car accelerated forward. This usually carried the car well beyond the front ends of the channel.'

A Chevrolet 1533X2 trapped in the sand. Visible to the rear, by the back right wheel, is one patrolman who seems to be looking at the wheel, where possibly a comrade is digging out what Bagnold described as a ‘little valley of sand’ in front of each rear wheel. Then two channels, each measuring 5ft by 11in, was laid in each valley, on which the wheels could bite as the car accelerated forward. (Author’s Collection)

FURTHER READING

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Lloyd Owen, D., *Long Range Desert Group 1940–45: Providence Their Guide*, Harrap, London (1980)
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ABOUT THE AUTHOR

Gavin Mortimer is a writer, historian and television consultant whose ground-breaking book *Stirling's Men* remains the definitive history of the wartime SAS. Drawing on interviews with more than 60 veterans, most of whom had never spoken publicly, the book was the first comprehensive account of the SAS Brigade. He has also written histories of the SBS, Merrill's Marauders and the LRDG, again drawing heavily on veteran interviews. He has published a variety of titles with Osprey including *The Long Range Desert Group in World War II* and *The SAS in World War II*.

ILLUSTRATORS

Henry Morshead is a designer in the British helicopter, automotive and bespoke sectors, with clients including BAC, Noble, NIO and Royal Enfield. He is also a STEM Ambassador with the Bloodhound supersonic car project. A former officer in the Royal Engineers and illustrator for Jane's, he maintains a keen interest in the design and use of military land and air vehicles.

Irene Cano Rodríguez (known as Araire) is a freelance artist working and living in Spain. Since 2014 she has worked as a specialized historical illustrator recreating historical scenes for museums, studios, editorials and magazines. Nowadays she also combines her work as an illustrator with teaching archaeological illustration.

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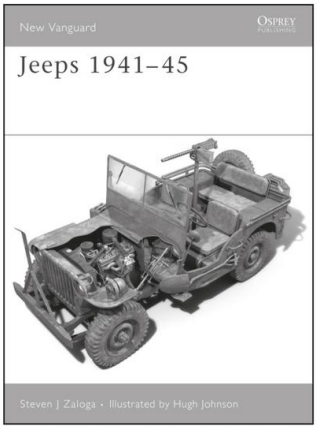

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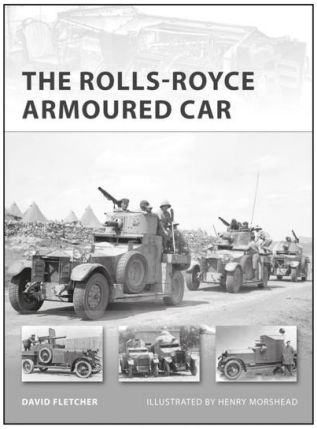

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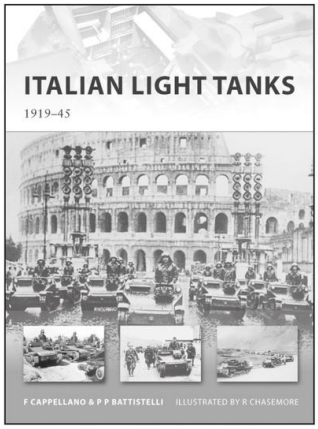

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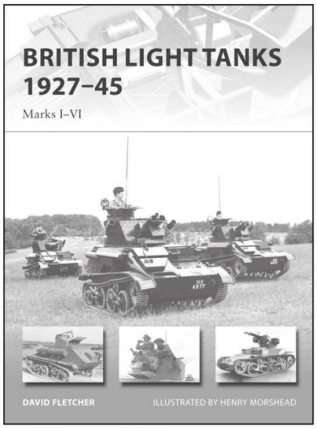

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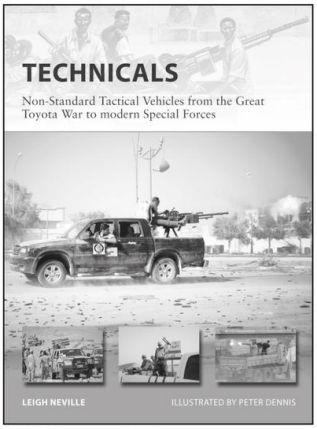
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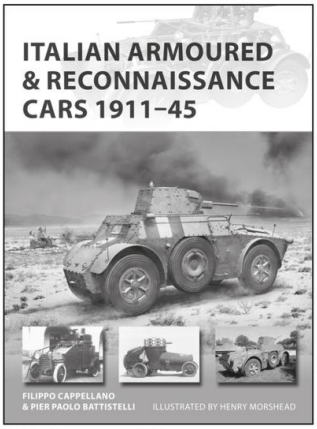
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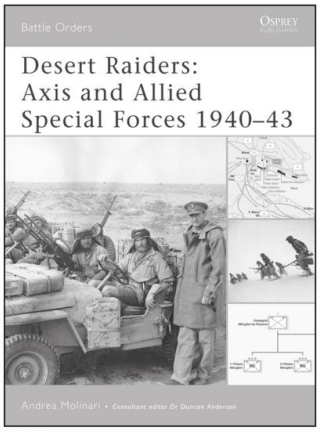

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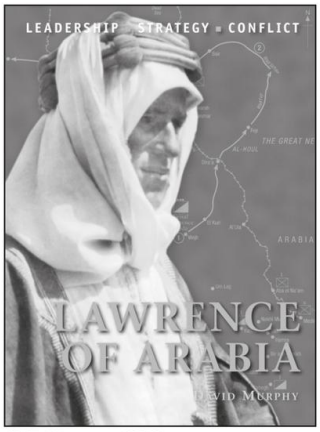

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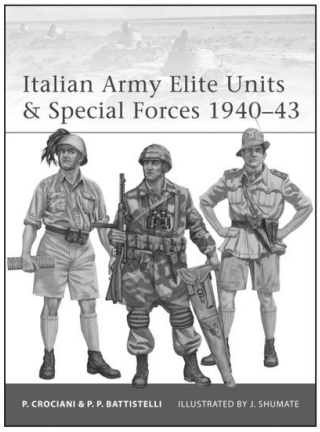

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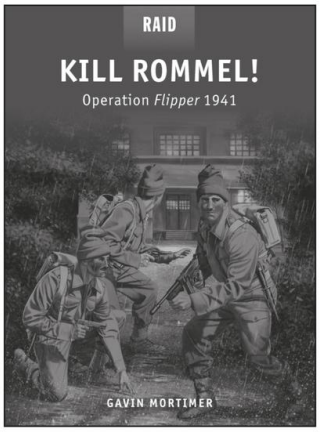

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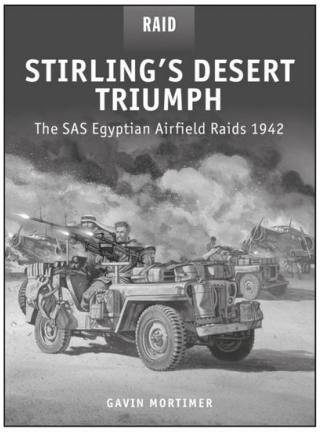

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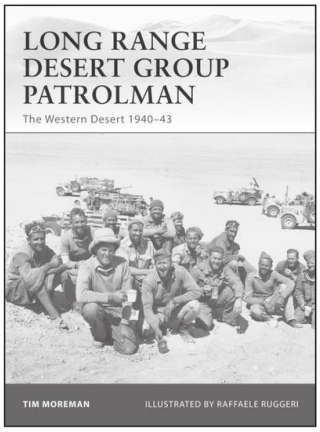

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